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A SYMPOSIUM ON SURGICAL COMPLICATIONS OF FILARIASIS

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Opener—Dr. P. N. Ray, B.A., M.B., F.R.C.S. (Eng.), Calcutta.

Seconder—Dr. M. V. Ramanamurti, M.B., B.S. (Mad.), F.R.C.S. (Edin.), Assistant to First Surgeon, K. G. Hospital and Tutor in Surgery, Andhra Medical College, Vizagapatam..

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Dr. B. Ramamurti, M.B., B.S. (Andhra), Research Scholar on Filariasis;

Dr. W. V. S. Kameswar Rao, L.M.P. Rajamundry, and others.

Dr. P. N. RAY'S ADDRESS*

In opening the symposium, Dr. Ray said that it was particularly gratifying that the discussion on filariasis was being held in Vizagapatam and in the precincts of the Andhra Medical College and the K. G. Hospital, where a great deal of research was carried out on this subject by their distinguished colleagues. Dr. Ray said, "I am here to learn rather than to preach and it is my sincere hope that as a result of free discussion amongst us, we shall be able to arrive at a clear conception of what we have achieved and what further work is yet to be carried out for the mastery of this widespread disease."

* Owing to pressure on space, freely abridged. Only a few illustrations are included—Ed. *J. I. M. A.*

Pathological Basis of Surgical Complications

Strictly speaking, complications of filariasis cannot be subdivided into surgical and medical groups but for our convenience, we may consider them under four headings: (1) Inflammatory, (2) Obstructive, (3) Allergic and (4) Carriers. It is obvious that there will be considerable overlapping.

Pathology of Filarial Infections

The adult filarial worm may be regarded as a true parasite and is an inhabitant of the lymphatic system of man. It is still a debatable point as to when or at what stage in its life history, the parasite begins to give rise to pathological changes in the tissues of the host. The question has been often asked—"Can the healthy or undamaged parasite give rise to pathological changes?" Opinion is still divided on this subject, but from our biopsy studies of enlarged lymphatic glands and the contained adult parasites from different parts of the body, we have found that apparently healthy parasites have been removed from enlarged lymphatic glands, which have shown marked pathological changes (Ray, 1934a). But I admit that the subject is worthy of further investigation by independent workers. After the larvæ gain entrance into the human body, they develop in some part of the lymphatic system but some of them may not migrate far off from their point of entrance. It is, therefore, not justifiable to consider filariasis as a harmless state of parasitic infestation. It may rightly be regarded as a specific infection or lesion of the lymphatic endothelium due (1) to the damage

caused by the passage or presence of the adult parasites and the microfilariæ and (2) to the toxins liberated by them (Ray, 1934a). In support of this view, it is emphasised that primary elephantiasis may occur, in the filarial subject, without the occurrence of lymphangitis and that an acute filarial attack may give rise to severe general reactions with negative bacterial findings. (Ray, 1936).

Living Parasites and Pathological Changes: It it now quite evident that the presence of adult parasites and the constant passage of microfilariæ will ultimately induce a definite cellular reaction in the lymphatic vessels and the surrounding tissues, particularly in the lymphatic glands. Dilation of the infested lymph vessels is an early change (Fig. 1) but varicocity and hypertrophy are not met with until the occurrence of obstruction at a higher level. It has been observed that in hyperendemic regions elephantiasis of the lower limbs is common because the inguinal glands, through which the larvæ pass, are subjected to repeated traumata and, therefore, to severe pathological changes which cause obstruction. In elephantiasis of the male external genitalia, the pelvic lymphatic glands are involved. In regions of low endemicity these glands are not sufficiently damaged to cause obstruction to the passage of the parasites. They may, however, reach the pre-aortic group of lymph glands and even the cisterna chyli: the resulting obstruction will give rise to hydrocele of the vaginal sac, lymph varix of the spermatic cord chylocele and chyluria.

Lymphatic Obstruction: Lymphatic glands, containing adult parasites, become as a rule enlarged, owing to the formation of eosinophil granulation tissue which is most marked near the vulval end of the parasite (Ray, 1934a). Mechanical obstruction by adult parasites cannot be ruled out, but obstruction to the onward flow of lymph is mostly inflammatory in origin. Compensatory lymphatic circulation is quickly established provided, of course, increase of lymph pressure and dilation of lymph vessels are present in the neighbourhood of the block. Lymphatic œdema and varices may follow lymphatic obstruction. It is customary to regard the eosinophilia as an index of allergy. The effects of diurnal parturition of the adult female parasite, imprisoned in an obstructed lymph vessel, may be conjectured but are not so easily demonstrated. What effects the myriads of microfilariæ alive and disintegrated will have on the endothelium deserve further careful investigation.

Changes round Dead Parasites: The cellular reaction round a dead parasite is comparable to that round a foreign body which is capable of absorption or removal. Examples of these changes are best seen in chronic epididymo-orchitis of filarial origin (Ray, 1934; Menon, 1935). The epididymis is much more enlarged than the body of the testis. If specimens are removed before midday, numerous microfilariæ are also seen within the uterine cavity of the living parent worm (Fig. 2). The epididymis contains a mass of necrotic hyaline-like material in which disintegrating parasites may be identified (Fig. 3). According to O'Connor (1932), the remains of the dead worm are shut off like a foreign body in a cocoon-like case of hyaline material. This area is surrounded by a zone of round cell infiltration with varying numbers of plasma, eosinophil, and foreign body giant cells (Ray, 1934: Menon and Annamalai, 1935). Eventually, the whole area may become fibrosed, degenerated or calcified (Fig. 7). Similar changes are found in other regions of the body in varying degrees.

Genital Lesions: Involvement of the male genital tracts is characteristic of *W. bancrofti infection.* Romiti (1935) has sponsored the theory of the completion of the parasitic cycle in the genital lymphatic system of man. According to him, the different infective lesions are due to the migration of the adult worms to other parts of the body. This hypothesis has not been proved. It is, however, necessary to explain why adult parasites should be present in the spermatic cord and the epididymis in such large numbers. It appears that as a result of lymph obstruction at a higher level *e.g.,* the pre-aortic lymph nodes and cisterna chyli, aberrent migration takes place into these organs. The pathological processes involved in chyluria will be referred to later. Elephantiasis of the female external genitalia is comparatively rare. The rarity of genital elephantiasis in childhood may be partly due to the non-development of the parts before puberty and partly due to the absence of what has been described as hyper-filariasis (Lane, 1931; Ray, 1936). The latter condition may be partly due to the small size of the lymphatic vessels, preventing the onward passage of the mature worms.

Secondary Infection: The hypothesis of secondary streptococcal infection was brought in to explain the recurrent attacks of lymphangitis, but the conception of 'streptococcal latency' is not necessary. There is no doubt that these attacks are due to the adult parasites themselves. In a large number of cases, there is a

FIG. 1.

Photomicrograph showing transverse sections of adult filaria within dilated lymphatics of the testis. (1/6×2 Zeiss) —P. N. RAY

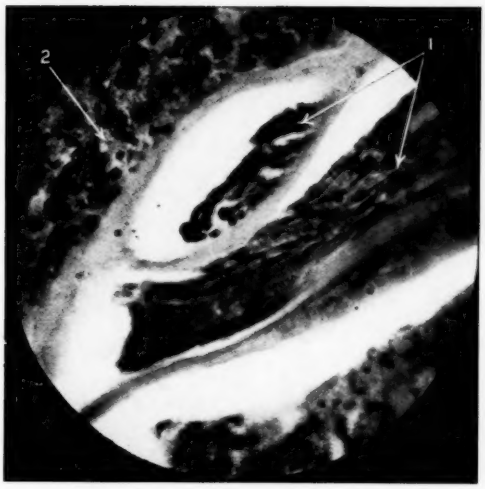

FIG. 2.

Photomicrograph showing (1) oblique and transverse sections of adult female filaria containing numerous micro-filariæ within the uterus, (2) eosinophil granulation tissue surrounding the dilated lymphatic. (1/12×2 Zeiss) —P. N. RAY

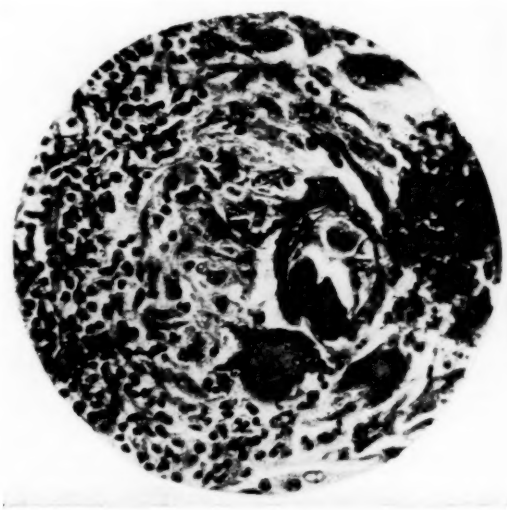

FIG. 3.

Photomicrograph of section of an internal iliac lymphatic gland showing the arrangement of eosinophil and 'foreign body' giant cells round a dead worm (Wuchereria bancrofti). (Leitz 1/6×6.) —P. N. RAY & S. SUNDAR RAO

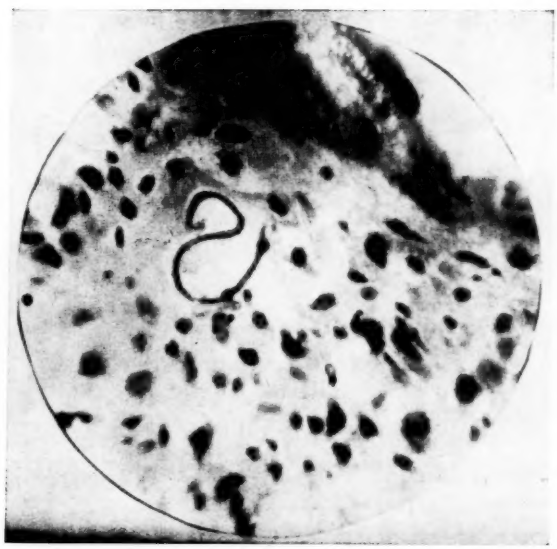

FIG. 4.

Photomicrograph showing microfilaria bancrofti in a section of a pre-aortic lymphatic gland. (Leitz 1/6×6.) —P. N. RAY & S. SUNDAR RAO

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like Cochin and Orissa. The essential pathological lesions consist of obstruction to the regional lymphatic system, including the pre-aortic lymph nodes, cisterna chyli and the thoracic duct. (Fig. 4). Obstruction of the thoracic duct or the cisterna chyli does not invariably end in rupture of the varicose lymphatic trunks into the urinary tracts (Ray & Rao, 1939). In hæmatochyluria, there is a generalised lymphangiectasis with incompetence of the lymphatic valves, thus allowing a direct flow of blood from the subclavian vein. A history of injury is obtained in about 50 per cent of cases and in females it appears to date from a parturition. The amount of fat and albumin in the urine shows great variation; the maximum reached was 1·1 per cent fat and 0·6 per cent albumin. Fibrin, when present, is commoner after the mid-day meal. The excretion rate of fat shows a great variation for different kinds of fat in the diet. The blood cholesterol shows a definite increase in cases of filarial infection.

The leakage of chyle is of vesical origin in nearly two thirds of all cases and the site of leakage is found to be in or near the trigone (Fig. 5). Cystoscopy, to be of value, should be performed during the flow of chyle. In case of chyluria of renal origin the characteristic efflux may also be seen. (Fig. 6). Excretion urography may show a remarkable communication between the renal calices and dilated perirenal lymphatics, and a number of delicate fibrils are seen radiating from the kidneys.

Treatment: A simple regime consisting of rest in bed with the foot-end elevated, avoidance of fat in the diet and mild aperients may abort an attack. Cystitis and clots are two unpleasant complications which may be met by bladder washing and irrigation. Cystoscopic fulguration and ureteral diathermy are effective in certain cases. (Ray & Rao, 1939).

In theory a successful lymphatico-venous anastomosis would provide a satisfactory short circuit for the lymphatic obstruction but in practice it has not proved a surgical success.

(d) *Lymph Varices:* In case of lymph varix of the spermatic cord, which is very frequently mistaken for a bubonocele, injection of sodium morrhuate solution (10 per cent) will be found useful. Similar treatment is indicated for varicose lymphatic glands.

(e) *Elephantiasis of Limbs:* The main problem in the surgical treatment of elephantiasis of the lower limbs is to establish satisfactory colateral lymphatic circulation. In the past, attempts were made by Kondoleon to establish a more direct communication between the superficial and the deeper lymphatic trunks, but the operation has not proved to be a success because the barrier was almost complete in the region of the inguinal and pelvic glands. The substitution of mechanical drainage by means of a long silk thread inserted under the fascial planes has also not been a success. Such drainage was presumed to act on the principle of capillary drainage. The two following operations are still under trial: (*i*) Modified Auchincloss operation. In this operation an attempt is made to remove focal spots and other areas known to be the starting point of recurrent attacks of fibro-myositis. The raising of the flap of skin involves a delicate plastic operation. (*ii*) Gluteal-femoral plastic operation. The object of this operation is to divert the lymphatic channels of the lower limb into the gluteal region and thereby develop an efficient alternative drainage *via* the axillary and neighbouring lymphatics (Ray, 1941). A large flap of skin and fat is raised from the gluteal region, and placed in the bed of a similar flap raised from the femoral region. This second flap is then placed in the gluteal bed.

It appears that a combination of these two operations is likely to give satisfactory results but further experience is necessary. Anastomosis between a varicose lymphatic vessel and its companion vein (lymphatico-venous anastomosis) has not been a success.

III. Treatment of Carriers

This obviously cannot be classified under the heading of 'surgical complications', but it is important to keep the problem in mind. We are not in a position to state what percentage of the population in endemic areas can be classed as carriers. The problem of filariasis is in many respects similar to that of malaria. (Ray, 1940). Preventive measures are most important. There is no specific drug which will destroy the parasite without harming the human host, but the quest is being continued for the discovery of such a drug which will in addition be excreted into the lymphatic system in an effective concentration.

IV. Secondary or Superadded Infection

The theory of a streptococcal infection in filariasis is no longer valid. The parasite itself may now be

regarded as the prime or ætiological factor in all the inflammatory complications. Inflammation and suppuration are common in all filarial lesions because of the liability of the parts to chaffing, intertrigo, impetigo etc. It is important to remember that secondary infection is more frequently due to pyogenic organisms other than the streptococcus. A secondary streptococcal septicæmia was in the past attended with a high rate of mortality but the prognosis has greatly improved with the advent of the sulphanilamide preparations.

Conclusion

In this brief review I have tried to present a clear picture of the problem of filariasis, as it is seen by the surgeon. I am conscious of my limitations and would humbly request my colleagues to regard them in an indulgent spirit and clarify the points which, in my ignorance, I have been unable to explain. I wish to acknowledge my indebtedness to my numerous colleagues during many years of co-operation. I wish to thank in particular Professor C. C. Bose and Dr. D. N. Banerjee of the Carmichael Medical College, Calcutta, Col. Sir R. N. Chopra, Kt., C.I.E., I.M.S. (Retd.) and Dr. S. Sundar Rao, School of Tropical Medicine, Calcutta and also my colleagues and House Staff in the Calcutta Medical College.*

* A Short Bibliography

Banerji, N. (1926)—*Indian M. Gaz.*, Vol. LXI Supplement, March, p. 7.

Goyal, R. K. and Rao, S. Sundar (1940)—*Ibid.*, Vol. LXXV, p. 658.

Lane, Clayton (1931)—*Lancet*, Vol. 1, p. 1100.

Menon, B. T. (1935)—'Problem in Filariasis'. Univ. Madras, Thompson & Co., Madras.

Menon, B. T. and Annamalai, D. R. (1935)—*Jr. Trop. Med. and Hyg.*, Vol. XXXVIII, p. 18.

O'Connor, F. W. (1932)—Trans. Roy. Soc. Trop. Med. & Hyg., Vol. XXVI, p. 13.

Ray, P. N. (1934)—*British J. Surgery*, Vol. XXII, p. 264.

Idem (1934a)—*Indian M. Gaz.*, Vol. LXIX, p. 554.

Idem (1936)—*Calcutta Med. J.*, Vol. XXXI, p. 121.

Ray, P. N., Alam, K. S. and Ghosh, B. K. (1938)—*Indian M. Gaz.*, Vol. LXXIII, p. 649.

Ray P. N. and Rao, S. Sundar (1939)—*Brit. J. Urol.*, Vol. Vol. XI, p. 48.

Ray, P. N. (1940)—*Calcutta Municipal Gazette*, XIth Health Number, p. 49.

Idem (1941)—*Indian M. Gaz.*, Vol. LXXVI, p. 194.

Romiti, C. (1935)—Trans. Roy. Soc. Trop. Med. & Hyg., Vol. XXVIII, p. 613

Dr. M. V. Ramanamurti's Address

Dr. Ray has given an account of some of the problems that confront us regarding the mode of infection and the surgical complications of filariasis. His study on the subject has been elaborate and his exposition of his views is clear and illuminating. I do not propose to say much about the academical aspect of this infection as Dr. Bhaskara Menon under whose direction the research on this subject is carried out in this Institution, will give an account of the observations made here. I shall confine myself to the clinical aspects of the different surgical complications and the treatment adopted in this hospital for such complications.

The cases that seek admission here can be classified under two groups: (1) Inflammatory conditions of the lymphatic system and organs such as testis and epididymis. (2) Cases presenting obstructive symptoms.

Those falling under group one are lymphangitis, lymphadenitis, funiculitis, epididymo-orchitis, suppuration of the glands and, abscess formation in the deeper planes of the limbs.

Although it is possible that the inflammatory conditions are due to the toxins liberated by filaria, secondary infection is responsible in some cases. The organism that was isolated in most of the cases from the abscesses was the staphylococcus. In a few cases streptococcus was grown. The treatment adopted in acute conditions such as lymphangitis is with one of the drugs of the sulphanilamide group followed by a course of vaccine. The value of the vaccine therapy cannot be properly assessed but in a few cases, where the patients were followed up for over a year, there was no recurrence of attacks. The antimony preparations were not tried to any marked degree. Dr. Ray has mentioned about treating these cases by infecting the patient with malaria and keeping up a high temperature for at least 48 hours. I would like to suggest that the same effect may be obtained by intravenous injections of T.A.B. vaccine and probably this may be better than to infect the patient with malaria.

The obstructive cases that come for treatment are: lymphatic varix, lymph scrotum, nodules in the epididymis or the cord, chyluria, elephantiasis of the genitals, breast and extremities, hydrocele and chylocele.

The obstruction is due to the adult worm blocking the lymphatics or due to fibrosis and stenosis of the lymphatics produced by the dead or calcified worm.

In the obstructive cases the accumulated lymph offers a pabulum for the growth of pyogenic organisms, which are responsible for repeated attacks of inflammation occurring even after the filarial attacks of lymphagitis have stopped. The excision of the thickened skin and the blubbery tissue underneath, gives relief to the patient.

The question of efficient diversion of the lymph from an obstructed to a non-obstructed area has been considered from time to time but the results are far from satisfactory. Kondoleon's operation is based on this principle. I had tried this in only one case. Although the immediate effect of the operation was good, I cannot say how far it would be a permanent remedy as fibrosis that occurs in the opened up tissues causes blockage and prevents any diversion of the lymph from the superficial to the deep lymphatics.

As regards the gluteo-femoral grafting suggested by Dr. Ray I would like to know if instead of using flaps of skin and subcutaneous tissue he has tried the use of tube grafts as practised to cover the raw area exposed by the removal of scar tissues in case of burns. The removal of the elephantoid tissue in cases of elephantoid scrotum, is both efficient and easy. Even this operation, though simple, is met with complications. I shall just mention some of the common difficulties that one has to face and the alteration in the treatment I had tried to overcome such difficulties.

As the operation is done in a tissue which has been subject to repeated attacks of inflammation, where there is a possibility for latent sepsis to remain, there is a chance of flaring up of the infection. Before the introduction of sulphanilamide, the routine practice adopted by me was the administration of streptococcal serum by the intravenous route for two successive days previous to the operation. I now use one of the preparations of sulphanilamide as a prophylactic measure. Besides this the patient is given a full course of filarial vaccine, as I believe in a certain number of cases, there is a mixed infection responsible for the repeated attacks of lymphangitis.

I had never come across any complication as far as the healing of the scrotal wound was concerned after giving the prophylactic treatment.

The question of skin grafting of the penis is still a problem. Although Thiersch graft takes well, the erection becomes painful subsequently as there is no loose tissue between the grafted skin and the body of the penis. One of the methods used is to fix the penis in a frame so that it remains stretched till the graft is taken. The patient has to be catheterised for five days to one week. I prefer to catheterise the patient periodically as an indwelling catheter in the urethra had given rise to the formation of an intractable fistula in one of my early cases. The second method I adopt to overcome painful erection is to make use of the skin of the prepuce in cases where it is not affected. It is drawn back and stitched to the skin at the peno-scrotal junction. There is always sufficient skin available to cover the penis unless it is affected badly. Owing to the loose tissue underneath the skin, it gradually stretches and does not cause any discomfort to the patient.

I shall make mention of one more difficulty that is commonly encountered. There is invariably a ring ulcer at the root of the penis whatever the care that is taken to cover it properly with the graft or skin. This raw surface takes a long time to heal but for which the patient can be discharged within a fortnight.

Nodules in the epididymis and cord—This is very commonly seen and is often mistaken for tubercular condition. It is not uncommon to find the adult worm in such nodules.

Chyluria and lymphuria—These complications are occasionally seen here. One thing for which I have not been able to find an adequate explanation is the presence of blood in some of these cases; the amount of blood exceeding the amount of chyle sometimes.

Before closing up my observations on this subject, I would like to make mention of a recent case I had seen with lymphorrhagia from the urethra. It is common to see cases of lymph scrotum with lymphorrhagia but the exudation of lymph from the urethra is quite uncommon. This patient was operated for elephantoid scrotum about three years ago. For the last six months he has been having a constant flow of watery fluid from the urethra. There is no history of urethritis and the patient passes urine freely.

DISCUSSION

*Dr. T. Bhaskara Menon's Observation**—Regarding the pathological lesions the rarity of obstructive lesions in infancy and childhood may possibly be due to the size of the dose. Hyperfilariation in the presence of a large number of adult worms, seems to be necessary for the development of obstructive symptoms. Attacks of lymphangitis and filarial fever may be

* Dr. Menon's lecture was illustrated with numerous photomicrographs, which were published in his Curzon-Travancore lectures (1935).

commonly misinterpreted in an infant or a child and successive infection would take time before lymphœdema can develop. It is doubtful whether we can regard the child's reaction to the parasite as different from the adults.

The question whether living parasites undamaged in the lymphatic spaces could produce symptoms is not certain. Symptomless filariasis is quite common in endemic areas. It is not possible to assess in human tissues whether the living parasites cause endolymphangitis by a hypothetical toxin. In pathological material parasites are generally found dead and in various stages of absorption. We have specimens of the glands showing living parasites without any surrounding reaction due to the parasite or to the microfilaria. It is with the dead parasite that we find well marked tissue reactions. In regard to the type of pathological lesions two distinct types are met with—one an acute eosinophilic inflammation with œdema, which we have regarded as allergic from escape of protein from a dead or damaged worm—the other a filarial granuloma with formation of a pseudotubercle due to the absorption of the dead worm or around a calcified worm. The pathological effects we have regarded as allergy since similar allergic reactions are met with in hydatid disease, schistosomiasis and other parasitic conditions. This allergy would have explained the attacks of filarial fever, elephantoid fever and lymphangitis. The nodule formation is the result of chronic inflammatory changes around the worm in the course of absorption. We do not regard the streptococcus as the ætiological agent though this theory has been boomed up in India.

The path of the infective larvæ has been regarded as twofold, from the capillaries to the blood with localization in the genitalia or along the lymphatic vessels to the glands and thoracic duct. If we consider the first possibility we have to explain how infective larvæ 1800 μ in length and 25-30 μ in width can pass through the capillary plexus of the lung without embolic arrest. In lizard filariasis our experimental studies tend to show that the lymphatic pathway is the one that is probably followed and not the blood path. Our transmission experiments both in the lizards and in man have shown that the larvæ deposited in the skin round about the mosquito bite die, but that the larvæ that are directly deposited deep in the puncture along side the stylets are the only ones that can go through the tissues. The larvæ do not exhibit any special 'taxis' effect towards the punture in the skin nor do they penetrate unbroken skin.

Dr. B. Ramamurti's Observation—What happens to the filarial infective larvæ once they are 'inoculated' into man by the mosquito is still to be worked out. It has been said that the larvæ enter the blood "escalator". This theory like so many others, is put forward to explain the genital localisation. In support it has been argued that the lymphatics are closed channels and are narrower than capillaries, but recent work suggests that the lymphatic capillaries are generally wider than blood capillaries. In the lizard filariasis our observations show that the larvæ do not follow the blood route in their migrations. If the larvæ enter the wider venous capillaries they have to pass the narrow capillary system of the lungs. There is, however, no evidence that infective larvæ are found in the lung capillaries or that embolic arrest takes place in the lung. In the case of hookworm larvæ which follow the blood route the arrest in the lung capillaries is followed by migration into the alveoli. All these points appear to show that the lymphatic route is the one the larvæ select rather than blood infection.

We are of opinion that the whole of pathology and symptomatology of the disease is mainly due to the worm itself, due to its excretions when alive and disintegrating products when dead. The role of bacteria in the disease is a minor one. It is now possible to show immunity as well as allergy in filariasis and this allergic state, which most likely varies from man to man to a given infective dosage, will explain the varied symptomatology of the disease including the non-bacterial lymphangitis and the filarial fever.

The most important and the most unsatisfactory problem in this disease is the treatment. The fact that people advocate varied drugs and cures shows that there is no specific treatment. A specific drug must kill the adult worm in very great dilutions and this should be indicated by the disappearance of microfilariæ in a short time, the patient remaining free from acute attacks of lymphangitis; some times in such an attack the microfilariæ disappear from the blood. In the absence of such a specific treatment any other treatment is symptomatic. We have found that in early cases strict prophylactic measures rigorously carried out to prevent further doses of infective larvæ gave better results in stopping the symptoms rather than any hypothetical drug treatment.

Dr. R. Mahadevan's Observation—I hope the following few points, the results of observation on cases of filariasis seen here, will be of interest:—

(1) *Pathological effects of filariasis in the young:* As has been pointed out by Dr. Ray in his opening remarks, it has been also our experience here that infants and the young very rarely show such pathological effects as elephantiasis of the leg, scrotum, etc. in spite of the fact that the incidence of filarial infection is fairly heavy in these parts.

Hence the accompanying photographs showing elephantoid condition of the penis and scrotum in a boy of 13 will be of interest. (Fig. 8). He had noticed commencement of the swelling 2 years prior to admission, *i.e.,* at the age of 11 itself. He denied having had attacks of fever previously and examination of night blood showed no microfilaria. (Fig. 9).

It must be pointed out, however, that the occurrence of filarial infection as such in the young is by no means rare. Cases of filarial adenitis of the groin glands and filarial lymphangitis in the young have been seen in our clinic fairly frequently. Examination of night blood do show microfilaria in these.

(2) *Walking bare footed is a great menace for people with elephantoid leg:* One simple method which seems to mitigate to a large extent the disabilities due to a filarial leg is worthy of mention, *viz.,* the scrupulous avoidance of walking bare footed. Some at least of the pathological effects of elephantoid leg is due to walking on bare foot. The minute and frequent traumata and the consequent infection that is bound to occur thereof, is probably an important factor. People with clean habits have less disabilities. I know of some cases (in at least one of them with elephantoid leg of over 20 years standing) in the better class of people where the enlargement of the leg has been very slow and no ulceration has occurred. In them the unsightliness of the condition has been the real distressing factor. All the precautions that they take is merely to avoid walking bare footed and to keep the foot and leg clean and dry, well washed with soap and water.

(3) *Some points in history:* A carefully taken history reveals in almost all cases of elephantoid leg or scrotum previous recurrent attacks of fever with enlargements of groin glands. A few deny having had any such previous troubles and say that the first thing to be noted was the elephantoid condition. It seems likely that even in these few, attacks of fever have occurred so long before the thickening of the skin has become definite enough to draw their attention, that they have failed to think of the fevers and their later troubles in the light of cause and effect.

(4) *Frank hæmaturia:* I have seen a good few cases where the patients came in for frank hæmaturia and all that could be found on investigation was the presnce of microfilaria in the night blood or in the urine itself. In one such case a well built man of 30, who came in a state of alarm due to hæmaturia, all other routine investigations proved negative. A small piece of what I thought to be a piece of growth when seen through the cystoscope on removal and further examination by the pathologist proved to be nothing more than altered blood clot. It is 3 years now and the patient is keeping perfect health and he tells me he has not had further attacks of hæmaturia nor has he ever had chyluria.

In some of these cases the diagnosis has been made more easy by the patient passing not pure blood, but good amount of chyle and blood mixed. This happened in a lady of about 45 who had an alarming attack of hæmaturia about a year ago and night blood showed microfilria. Soon after, she passed plenty of chyle and blood mixed. She is now in perfect health.

(5) *Hæmospermia:* One of my very distressing cases is a young man in whom I excised his elephantoid scrotum; 6 months afterwards he developed hæmospermia which is very intractable. He is otherwise quite healthy and fit, but the attacks of hæmospermia naturally upset him very much. The hæmospermia periodically stops and restarts and he imagines the temporary benefits to be due to the medicines used.

A reference to the literature suggests cauterisation of the orifice of the ejaculatory duct through the operating cysto-urethroscope. Is it justifiable to do vasectomy on one or both sides; or ligature of the vas on both sides if there is proof or suggestion that the bleeding is from the epididymis or testis?

(6) *Chyluria:* In patients with chyluria there is a great deal of psychological upset. It is a mistake in these people to restrict fatty diet. It is well known that chyluria stops or starts at intervals, whatever may be the treatment adopted. To restrict their fat intake is only to put on them an unnecessary burden. They then lose weight and psychologically become more upset. If on the other hand you tell them "Don't worry, you can easily replace the lost fat by an extra glass of milk" they feel much more reassured.

In fact I have had no reason to regret this advice I have given to the few cases of chyluria that I have seen. Recently I saw a doctor with chyluria who had restricted the fat intake, had lost weight considerably and came to hospital in a condition of absolute nervous breakdown. His resistance had become low and consequently fell a prey to superadded cystitis. It was not an easy matter to convince him not to restrict his diet, but so soon as he took to eating well particularly with extra milk etc., he rapidly picked up.

(7) *Some points regarding operation for elephantoid scrotum and penis:* In the hope of establishing a good lymphatic anastomosis with the deeper channels the coverings of the spermatic cords on both sides were laid freely open and the fascia of "Colles" and the deep fascia over Scarpa's triangle on either side opened up, as an extension to the operation of excision of the elephantoid tissue. Dr. Kini has adopted this method in several of his cases, and seeing him I have tried the method in a few cases. The cases wherein I have adopted the method are too few and too recent to enable me to draw any conclusion.

Regarding the removal of the penile skin, if it is in an early stage of elephantoid condition it is I think much better left alone. *An early elephantoid penile skin is better than the best skin graft.* If the penile skin becomes further thickened and the patient complains about it, it can always be removed by a second stage operation. Only recently I saw a patient in whom I had skin grafted the penis. The skin graft has taken very well but his complaint is that the pleasurable sensation during coitus is duller than before the operation. Possibly with time and complete regeneration of the nerves proper sensation may be regained.

In some cases the preputial skin has been pulled back and stitched instead of applying a skin graft. This does well in some cases, but in others it becomes œdematous, bulbous and easily ulcerates. I have at present a case where I utilised the preputial skin and the skin has begun to ulcerate and is a great source of annoyance to the patient.

(8) *Endemic funiculitis:* This is a condition seen in some endemic areas of the southern parts of this presidency. The patient gets severe pain in the inguinal region, with rigors and high fever. There is an associated constipation and abdominal distension possibly due to reflex inhibition of the bowels. Such cases are often mistaken for strangulated hernia and on incision the spermatic cord is found acutely inflamed and beads of pus ooze out from mutiple points. The mortality of the condition is very high. Being due to an acute streptococcal infection its ravages must be less now-a-days due to the advent of the sulphanilamide group of drugs.

(9) *Filarial orchitis simulating malignant growth of the testis:* In endemic areas, before orchidectomy for suspected malignancy, the possibility of filarial orchitis must be excluded beforehand.

(10) *Lymph scrotum a precursor of elephantoid scrotum*: In some of the cases that come to the outpatient department for lymph scrotum, the scrotal skin is almost normal. Possibly the condition will be soon followed by the development of definite elephantoid condition, *i.e.,* the lymph scrotum is as it were a precursor of elephantiasis in these cases.

(11) *Chylous hydrocele:* This has sometimes occurred in individuals as the only obvious manifestation of a filarial infection.

Dr. W. V. S. Kameswara Rao's Observation—

(1) *Symptompless filariasis:* Blood examinations carried on individuals admitted into the hospital in hyperendemic areas on successive nights revealed that about 15 per cent of them were positive for microfilaria in blood. They do not exhibit any manifestation of the disease. Yet the adult worm and the microfilaria bancrofti are present in the blood. This leads to the conclusion that the adult worm or its embryo has no toxin of either exogenous or endogenous variety.

(2) *The mode of infection:* At the stimulus of the warm blood of the human host the filarial larvæ emerge from the Dutton's membrane of the proboscis of the biting mosquito and wriggle on the skin of the host adajacent to the puncture to enter the blood cocalator through the hole caused by the proboscis of the mosquito after its withdrawal.

(3) *Microfilarial periodicity:* The blood counts of microfilariæ bancrofti taken on successive nights in the same individual at the same hour in the night is constant. When the worm is regularly delivering the microfilariæ bancrofti every day, the constant presence of them in the circulation of the host, reveals that some members are being killed in some organ of the human host. If this mysterious place is found out it will give an idea about the mode of death to the worm and its embryos.

(4) *Classification of the filarial manifestations:* They can be conveniently grouped into (*a*) obstructive manifestation, (*b*) manifestations due to secondary infection (This is called by others as the toxic group. But the worm or its embryo has no exogenous or endogenous toxin). (*c*) The mixed group: I do not fall in with the allergic group of manifestations, for they are not found in the practical field as independent manifestations, but they are in combination of the other manifestation. For example, urticaria of the large type are usually accompanied with the onset of sudden fever and pruritus following a regional lymphangitis.

(5) *Treatment:* (*a*) Prophylactic. It is advisable that persons suffering from filariasis as well as those not suffering always take to the habit of sleeping under the mosquito net. This will help a lot in reducing the incidence of the disease. (*b*) Curative. Any effective method of treatment for this disease must be based on the points namely: (1) treatment of the obstruction manifestations, (2) treatment of the secondary infection and its concomittant results, (3) a specific treatment to kill the parent worms. Any deficiency in these three methods will result only in unsatisfactory therapeutic results.

It is a long-felt need for a drug which when given by mouth or by injection circulates in the lymph chyle and blood and other body fluids unchanged in such a capacity and composition as to kill the adult filaria brancrofti and its embryos, without dangerous effects on the human system. This is a difficult thing to achieve and as the worm hides deeply in the preaortic group of lymph glands and other deep lymphatics, etc. and the drugs administered by any route are soon excreted, before they have any effect on the worm or change in their composition, by entering into combination with the products of the general metabolism and thus become inert. Attempts to kill the worm by surgical methods by incisions at the site of tender spots is bad surgery and this object should be achieved by such drugs which remain unaltered in the human system.

Such group of drugs are the aniline dyes, one of which the methylene blue is preferred. Doses of 7 grs. given intravenously give a concentration of 1 in 10,000 roughly in human blood and it makes the microfilaria disappear from the circulation for a long time and thus releases the most obstinate type of chyluria cases. But methylene blue cannot kill the adult worm itself, but plays a catalytic part in the basal metabolic reactions and thus causes inhibition on the part of the parent worm not to produce microfilariæ bancrofti. Pentavalent antimony compounds and arsenites also cause the embryos to disappear temporarily. 7 grs. dosage of methylene blue either by intravenous or oral method is too high and it is a cardiac depressant and renal irritant and upsets digestion.

Hence the minimum dose found to give a good effect over a long time, *i.e.*, 3 months and that is 1/3 gr.

The catalytic action of methylene blue combined with an arsenite and pentavalent antimony compound administered over a period of 3 months causes a slow death of the adult worm and its embryos. This combination has been issued as a patent medicine by certain manufacturers.

This much for killing the worm. Now for the obstructive manifestations surgery is the recourse for hydrocele, chylocele, lymph scrotum, etc. In subacute and chronic stages this treatment is to be supplemented with (1) a course of arsenical injections of either N. A. B. or sulfarsenol. (2) Injection of fibrolysin for absorption of the already formed fibrous tissues in the thickened skin. (3) Injection of vaccines or milk injections for causing febrile reaction and thus bring about reduction in the stoutness of the limb.

In endemic funiculitis and streptococcal septicæmia this line of treatment has proved to be very successful. With regard to other points in the symposium I agree with Dr. P. N. Ray.

Dr. P. N. RAY'S REPLY

Thanking his colleagues for their very cordial welcome and instructive addresses, Dr. Ray said that it was a great pleasure for him to admit that he had learnt a great deal from the investigation which was being carried out in Vizagapatam. It was, indeed, a great achievement for the Andhra University and the Medical College that within such a short period of time they have been able to build up a magnificent team of capable research workers. Dr. Ray made a fervent appeal to younger men to take up medical research for which, he could say from his own experience, elaborate equipment and funds were not essential. What was most

important was the spirit of scientific enterprise, embodying determination and enthusiasm.

In summing up, Dr. Ray said that the points of agreement reached in the discussion required no emphasis. They were agreed that the adult worm was the root cause of the pathological changes in the host. Some authorities questioned if healthy and undamaged parasites were capable of producing such changes; the answer to such doubts was to be found in more intensive investigation. The search for a specific parasiticide must be continued, but, meanwhile we should not neglect whatever therapeutic measures are found to be useful. Pyrotherapy is a new method but all were agreed that it is worthy of further trial. There are many methods and the choice of method may not be identical in each case for divergence of opinion is not necessarily a handicap. Malaria therapy possesses certain special advantages which, in spite of some risks, make it amenable to rigid control. With regard to surgical treatment of elephantoid limbs, the chief difficulty lies in the lymphatic blockage. The problem is how to develop an efficient alternative lymphatic drainage, for which two methods were described. The surgical technique will vary, depending as it does on many personal factors. Dr. Ray next briefly replied to the many questions and criticisms which were offered. In conclusion, Dr. Ray expressed his grateful thanks to the president, Dr. Tirumal Rao, and to his colleagues for their generous co-operation and helpful criticism.

CLOSING REMARKS OF Dr. B. TIRUMAL RAO

It is a great privilege and honour to have been asked to preside over the surgical section of the scientific proceedings of this Conference. It is long since however, that I have had anything to do with filariasis. I have, therefore, been all the more delighted to sit and listen to the lively and very interesting discussions we have had in the "symposium" during the last two days, on the surgical complications of filariasis. Dr. P. N. Ray in opening the symposium has rightly laid stress on the great importance of the subject. It is only next to malaria in its widespread prevalance and the enormity of suffering and disability incidental to its infection. Dr. Ray regards it as primarily an affection of the lymphatic system, changes occurring either due to the toxin of the adult parasite or the immature larvæ in corroboration of which he demonstrated numerous microphotographs, photographs, x-ray plates and urograms. His suggestion for discovery of a specific parasiticide is a valuable contribution to our knowledge and it needs further investigation.

Dr. Ramanamurti pointed out that a tube graft may be preferable to the gluteal femoral graft of Dr. Ray. His apprehension in regard to any possible danger by malarial therapy and his anxiety for substituting for it a safer alternative treatment appear to be both well-founded.

Dr. Bhaskara Menon doubts whether living parasites undamaged in the living tissues could produce any change at all and thinks it is the dead parasite that gives rise to well marked tissue reaction. He thinks there is no need to invoke the presence of the streptococcus or any other secondary infection to explain the fever or the chronic inflammatory changes. It is difficult to express any opinion at this stage of our knowledge on so intricate a problem as this. As regards the blood route of infection it is very difficult to accept it till the objections raised by him are satisfactorily explained.

Dr. Ramamurti's animal experiments in lizards are distinctly in favour of a lymphatic pathway. It has also to be remembered that the delicate endothelium of lymph capillaries becomes easily torn by extremely slight degrees of trauma leaving open gaps. Blood capillaries similarly injured get sealed up by clotting. It is more easy for communication to establish between lymphatics and tissue spaces. Particulate material such as filarial larvæ is probably more easily absorbed by the lymphatics than blood capillaries.

Dr. Mahadevan's experiences of elephantiasis in the young and his description of the technique employed by him for plastic operations are very interesting.

Lastly, I entirely endorse the fervent appeal made by Dr. Ray in the end to the younger men to take up medical research and Dr. Ray himself is an illustrious example of what a spirit of enterprise, determination and enthusiasm could achieve. It is now my pleasant duty in closing the proceedings to thank Dr. Ray for having given us an account of his brilliant work and other speakers who have read papers and have contributed to the success of the proceedings.*

* Symposium held in the Scientific Section of XVII All-India Medical Conference, 1940, at Vizagapatam.

THE PLACE OF PSYCHOLOGY IN MEDICINE

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The treatment that psychology gets from medicine is that of a step-child as evidenced by the literature, medical curriculum and even the text books of medicine. Whenever we hear anybody saying that some one is 'nervous' or 'neurotic' or 'has bad nerves', he means thereby that his mental make-up or behaviour is someway abnormal. Yet these words are derived from the word 'nerve' and so the individual is thought to have some organic lesions of the nervous system. In the medical curriculum, psychology has been banished altogether on the lame excuse that it is already too vast. In text books of medicine again, you will find some definite diseases of mental origin, described under diseases of the nervous system. This has thwarted the healthy development not only of psychological medicine but of general medicine as well. This suicidal policy reminds me of a story in the Æsop's fables in which all the limbs once revolted against the mouth as to why they all should work and the latter only eat. So they all stopped working but after sometime, they got the bitter experience that not only the mouth was losing its power but they also were getting weak and paralysed.

Whenever a patient comes to us for the relief of a physical or mental symptom from which he is suffering, we devote our whole energy by clinical, laboratory or electrical methods to find some lesion in one or other organ of the body, though sometimes in a twisted way, forgetting for the time being and ignoring the fact that there is such a thing as 'mind', the disorder of which may have produced the trouble. There is no need of going into the discussion of the various theories concerned with the relation between the body and the mind —the monistic, dualistic (which again may be spiritualistic or materialistic), interactionism or psychophysical parallelism; but the fact remains that just as organic lesions have their mental repercussions so mental disorders have their physical counterparts as well.

The medical practitioners very frequently get certain diseases and which, any one of them will not like to transfer to the psychiatrists for treatment. Yet these cases can neither be properly understood nor treated without the knowledge of the workings of the mind. These troubles may be classified under four headings as follows:—

(A) Frank cases of *psychoneuroses* like hysteria, occupational cramp, tic, railway spine and so forth are described under diseases of the nervous system—it is pleasing to note that hysteria has been transferred to the section on mental disorders in the recent edition of Price thus admitting its psychological origin.

(B) So-called *functional disorders* which come under the guise of organic diseases showing physical signs. It is to be understood that most of these troubles are cases of conversion hysteria originating from mental disturbances. A short list of such troubles are given here under the different systems:—Neurology—convulsions, tremors, spasms, paralysis, mutism, aphonia, blindness, deafness, stammering, spasmodic torticollis, etc. Cardiology—effort syndrome, D.A. H. or neurocirculatory asthenia, cardiac pain, feeling or pressure in the chest, dypnœa to simulate cardiac failure. Respiratory system—tuberculophobia, simulating phthisis. Alimentary system—pain, vomiting, uneasiness in the stomach, belching, simulating peptic ulcers, carcinoma of stomach, duodenum or colon; diarrhœa, visceroptosis, dyspepsia, etc. Genito-urinary system—impotence, frigidity, bedwetting in adults, pseudocyesis, syphilophobia, etc. Dermatology—anæsthesia, hyperæsthesia, paræsthesis, pruritus, etc.

It will be beyond the scope of this small article to give illustrations of all the above conditions. However, only a few simple examples are given below to show the gravity of the situation.

Aphonia:—A Muhammadan boy, 12 years old was brought to the Clinic for Neurology and Psychiatry, Calcutta Medical College Hospitals for aphonia. He was being taught under a religious teacher, *i.e.*, Moulabi, and had to commit to memory verses from the Koran and shout the Ajan before prayer times. Once during an epidemic of small pox in the village, he had to do this shouting with six others several times in the day and even once at 1 A.M. For the last performance, he had to remain awake till it was finished. He did it quite well for two days, but when he got up the next morning, his

voice was gone. Laryngoscopy did not reveal anything except the paralysis of the adductors of the larynx. On further analysis of the patient, it was gathered that he did not want to follow the religious teaching, but rather wanted the general English and Bengali education. He has been advised to do the same.

Paralysis:—A man aged 9, used to work as a supervisor in a workshop. One day while working, a piece of steel-scrap (about 15 to 20 lbs. in weight and 10 to 12 inches in length) accidentally fell on the outer aspect of his left arm—it just scraped, but did not break the bone or make any deep wound. He felt numbness and pain in the left superior extremity from the wound downwards. He worked in the workshop for 7 days after that but he could not say whether he used the left hand or not during these days.. After that he found that the hand was frail and he could not move it.

Examination showed that the left upper limb was flaccid, with loss of all the deep jerks and all sensations upto the axilla. Blood W. R. was negative. Electrical examination showed that the muscles of the affected limb gave only weak normal type of reaction.

Analysis of the mind showed that as he works on a bonus system, his conscious mind does not want to take any leave; and as a matter of fact, he had no holiday for more than 3 years, the result being that the unconscious mind is hankering after it; following the mild injury, the unconscious had produced the paralysis which would enable him in getting the holiday at the Company's cost.

Headache:—A boy of 18 was brought to me in the Neurological Out Patients' Department of the Carmichael Medical College Hospitals for extreme headache. Neurological examination revealed no abnormality; W. R. of blood was negative and there was no error of refraction. On analysing the mind for several days, I found that the boy was weak in mathematics and whenever he had to do any sum, he got the headache. I advised the guardian either to arrange a private tutor to coach him mathematics or to exclude it altogether from his combinations.

Conditions simulating heart failure:—(1) Two sisters (aged 20 and 16 years) were brought to me one day for heart failure, as they were both extremely dyspnœic—the elder had the real heart failure from mitral stenosis, but the younger was only simulating the other following the mechanism of identification.

(2) A girl of 17 years suffered from pseudocyesis or false pregnancy; when I told her the truth, at the 5th month, she got cured of it and began to menstruate, but after a few months, she was brought to me again, this time however, with severe dyspnœa simulating heart failure but the peculiarity was that she could not sit up, but had to lie down for severe dyspnœa. From this observation and the previous history I could at once guess the origin of the trouble in the mind.

It is interesting to note that her husband about 28 years old now is also nervous. He suffered from nervous dyspepsia about 7 years back, to some extent simulating duodenal ulcer, but nothing was found on skiagraphy with barium meal. He also wants a child. He came to me complaining of impotence. With suggestion, persuasion and explanation that it is due to the fact that he cannot excuse his wife's inability to give him a child, it disappeared.

Functional vomiting:—A man about 35 years old came to see me a few months back complaining of vomiting whenever he takes food for 5 years. The result has been the restriction of diet more and more (even milk diet for some months) at the advice of different physicians. I could find no sign of any organic disease. On exploring the mind, I heard that he used to earn more than a thousand rupees a month and so live in a richly style with meat, *polao* etc., nearly daily. About 5 years back, he lost that job and now he has to live on simple diet which his inner mind does not like. On asking him, I could get still further that one day he took his meal of polao and meat in a Mohammadan hotel, but there was no vomiting. I advised him withdrawal of all restrictions from his diet and to take meat that very night and the trouble has not made its appearance since then.

(C) Disorders of doubtful origin in which the real etiology has not yet been established; but the suggestion of mental origin has been absolutely disregarded, *e.g.*, asthma, dermatographia, urticaria, eczema, mucous colitis, migraine, epilepsy, hyperthyroidism and duodenal ulcers.

Mucous Colitis:—One case came to me last year after 2 years intense treatment on the organic side. He was a young man of 35; when he came to me, he was suffering from epidemic dropsy. I treated this latter trouble and while talking with him, accidentally I could get at his mental distress. He loved one girl, but married another and even after that he kept up his connection with the former—this difficulty of living with an unwanted wife was so much in his mind that he found himself impotent with his wife, but quite potent with the other. On trying to calm the mental aspect, his colitis also disappeared.

In these diseases, the investigations have been long directed towards the finding of organic lesions and causes producing them but it seems we have not been able to go much ahead—whereas various authorities have mentioned from time to time, the origin of these troubles in the mind and their cure by psychotherapeutic methods and I have seen also in some of these cases, exploration of the mental aspect and removal or soothing of the mental conflict have produced great beneficial results. I think therefore, that exploration of the body and the mind should be done side by side if real scientific progress is the goal we aim at.

(D) Organic diseases showing mental symptoms —In some cases the mental disturbance is so marked that such patients are admitted in mental hospitals, *e.g.*, general paralysis of the insane, agenesia of the cortex, cerebral tumour, Huntington's chorea, Korsakoff's

syndrome, some cases of disseminated sclerosis and postencephalitic Parkinsonism and so forth.

Cases of confusion or delirium are very frequently meet with, specially in this country in association with the acute infectious diseases.

In chronic affections as well, when the patients get tired of long treatment and become suspicious of their recovery a form of secondary neurosis develops, which it is the duty of every practitioner to observe and remove at the first instance for the benefit of the patients and I am sure, of himself as well, or else he will be deserted.

In fact, in every case, unless the mind is examined as well as the body, a thorough understanding of the patient cannot be achieved and unless we get that, it is not possible for us to follow the dictum 'Treat the patient and not the disease'. As a matter of fact, the management of a case means nothing but the psychological understanding and the arrangement of the mental comforts of the patient.

If we look to the organic side, the state of affairs is also disappointing for the same reasons. In the early stage of such chronic diseases like diabetes, tuberculosis, leprosy, chronic nephritis, carcinoma, etc., or during the intermission of disseminated sclerosis, progressive muscular atrophy, polycystic kidney, etc., when the signs cannot be definitely demonstrated, the cases are unnecessarily labelled as 'functional' without any consideration as to the mental aspects of the patients or whether such symptoms are of psychological origin or not. Once they are so labelled, the patients are not listened to for sometime till the end draws near with signs glaring before the eyes and the physician finds before him nothing but helplessness and repentence. Thus much valuable time is lost with the diagnosis of 'neurosis' simply because the mind was not examined.

The cause of this unnecessary mistake lies in the fact that the medical practitioners are not trained in the examination of the mind at all; many psychiatrists give up general practice and untrained psychoanalysts are not physicians at all. The body and the mind are so intimately connected that even the thorough knowledge of the one, not complemented by that of the other, cannot produce a perfect healer of mankind.

From the above facts, it is evident that the knowledge of psychology is absolutely essential for the proper development and working of medicine. There is necessity for specialists in general medicine (general consulting physicians) and in psychiatry (psychiatrists and psychoanalysts) to undertake difficult cases but every medical practitioner should be conversant with the mental mechanisms, methods of examination of the mind, minor mental disorders and mental hygiene and this can be achieved simply by the enforcement of compulsory lectures and training in this line in special psychiatric clinics and wards, opened for the purpose and a compulsory third paper in medicine as well as practical examination for this branch in the final M. B. and M. D. examinations of all the universities in India.

I have purposely omitted the question of the teaching of the relation of crime with insanity in general medicine. Only those physicians who have got special training in this line, can best understand and manage the criminals and so are entitled to be appointed as doctors in jails.

This will help not only our medical graduates to become thorough in their practice but also avoid the draining of money and credit from our profession which unnecessarily go out of our hands and give the various quacks, practitioners in other systems of medicine and priests of the various religious cults reasonable grounds to humiliate us in the public eye.*

* Read in the Joint Symposium between the sections of Psychology and Medicine at the 28th Session of the Indian Science Congress at Benares, January, 1941.

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ORGANISATION OF MEDICAL CONFERENCES

In a resolution passed at the XVII All-India Medical Conference held at Vizagapatam last Christmas, it was considered "desirable that all Medical Conferences of an All-India nature should meet at one place and at one time" in order to enable the largest number of medical practitioners to take advantage of these annual meetings with the minimum expense of time and money. The Conference expressed a desire that "the Central Council of the I.M.A. should take the initiative in the matter" and approach the authorities of other medical associations and societies which organise these annual sessions, with a view to exploring the possibilities of giving effect to the intention of the resolution.

We do not think it necessary for us to stress either the importance of the subject or the obvious advantages that will accrue to members of the profession, if ways and means can be found to implement the resolution. India is a country of long distances, and medical practitioners are scattered about in the four corners of the land. That is why very few amongst them can afford to undertake long journeys to attend medical and scientific conferences more than once in a twelvemonth. The independent medical profession, as a whole, is poor and it is no exaggeration to say that, barring a few fortunate ones at the top and members belonging to the services, the majority of practitioners just carry on a precarious existence from hand to mouth. It is, therefore, no wonder that although the total strength of the profession in the country is over 50,000, no medical conference, All-India or provincial and for general practitioners or specialists, is ever attended by more than a few dozen delegates and visitors. The poor attendance is not due to apathy or indifference amongst the profession to matters of scientific and academic interest but it is due to the hardship entailed in the expense of time and money. This is all the more regrettable in this country where facilities for post-graduate training and refresher courses are practically non-existent.

It is our considered view that if our sister medical societies and associations, which meet annually at different places and at different times of the year, could agree upon holding these yearly meetings at one place and at about the same time, the medical profession would be greatly benefited. In such a conjoint or co-ordinated effort, the collection of clinical, scientific and research work would be much greater than what small and specialized or select bodies could provide individually. Such an arrangement would also lead to the establishment of valuable personal contacts, expansion of scientific work, and the exchange of new ideas. In fact such co-ordinated conferences would be able to meet some of the requirements of a short post-graduate course. When general practitioners realise the value of such meetings a larger number are bound to attend.

We have heard it said in some quarters that there may be technical and other difficulties in arranging for the annual sessions of different bodies, to coincide; but, all things considered, we are sure that the advantages will greatly outweigh the disadavantages. We have no doubt that such an arrangement would be welcomed to a large body of medical practitioners throughout India who are desirous of attending such conferences. We, therefore, earnestly appeal to the authorities governing our sister medical societies and associations to give our proposal the careful consideration that it deserves. We are also of opinion that the many pleasant social functions which go with these conferences could also with advantage be held jointly. Such an arrangement will enable the delegates and members of different bodies to meet and renew personal contacts. If it is so desired, the scientific sessions may be organised separately under the auspices of different learned bodies, and according to a planned time table. This will prevent overlapping and it will enable the largest number of members to attend. We are sure that if by common agreement such a scheme can be worked out by a small committee consisting of representatives of all the societies, members of the medical profession in India will accord their decision a warm welcome and give practical proof of their appreciation by attending such conferences in very large numbers.

ASSESSMENT OF INCOME OF MEDICAL PRACTITIONERS

Now that the new official year has begun income-tax returns will shortly have to be submitted by medical practitioners. We beg to draw the attention of members of the Indian Medical Association to the concessions secured for them under the recent Income-tax Act by the efforts of the Association. It may be remembered that a memorandum was submitted to the Secretary to the Central Board of Revenue, New Delhi.* This was done on behalf of the Association by Dr. K. S. Ray, then Hony. General Secretary, through Mr. D. P. Khaitan, the well-known authority on Income-tax matters.

As a result of this memorandum certain concessions were granted and for the convenience of our colleagues, these are indicated below:

(1) A tax-free allowance of Rs. 1500/- has been given to every assessee. Annual rent of the premises, or portion of the premises, used for professional purposes, and expenses for repairs have been allowed.

(2) Expenses in respect of warming, cooling, lighting, and cleaning of business premises; salaries, wages of assistants and employees and their boarding; travelling when undertaken for professional reasons; upkeep of conveyances; telephone; insurance of vehicles and premises and also of appratus and appliances used for business purposes, and license of vehicles; trade and professional taxes. All these have been allowed as business expenditure if they are not in the nature of capital expenditure or personal expenses of the assessee but are laid out or expended wholly or exclusively for the purpose of the profession.

(3) Life Insurance premium has been allowed up to a maximum of Rs. 6,000/-.

(4) Subscriptions to Medical Associations, Societies and Journals have also been allowed as business expenditure. Expenses incurred in connection with post-graduate training will be allowed if it is shown that the expenses are incurred for the purpose of profession or vocation.

(5) *Depreciations*: The word "plant" has been defined to include vehicles, books, scientific apparatus and surgical equipment. Depreciation will be allowed on all these things. Further, depreciated value of the same things when discarded will also be allowed.

We hope that our colleagues will find this reminder of great assistance in compiling their income-tax returns. It is requested that colleagues will tell their friends and fellow practitioners of these concessions, whether they are members of the Association or not, so that the latter may also be benefited by the relief brought to them through the efforts of the Indian Medical Association.

* *J. I. M. A.*—Editorial (1939), Vol. III, p. 411 and also p. 431.

MEDICAL SCHOOLS IN BENGAL

In our last January issue while pointing out the futility of continuing the Medical Schools in Bengal we had occasion to remark on the workings of the Provincial service men. Since its publication our friends in the Provincial Service had drawn our attention to those remarks. Some of them have taken our remarks as rather derogatory to the service-men. It was far from our mind to let down Assistant Surgeons. It is well known that some of the Assistant Surgeons contributed so largely to the progress of medical science in the country. Our objection was to the methods of recruitment and posting of the officers in the Medical Schools and in District Hospitals which are not always done according to the standard of efficiency nor do we find any judicious planning for specialised services. Under the existing conditions efficiency of medical services as rendered by the Assistant Surgeons is bound of be of a low standard. We are opposed to any reservation of posts by a certain class in teaching and research appointments. We strongly hold that the posts whether in the Schools, Colleges or research institutions should be filled up by best men available by open competition. We are certain that the Assistant Surgeons will never grudge it.

THERAPEUTICS OF SULPHANILAMIDE GROUP OF DRUGS

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Till recently we had drugs sterilizing the blood or the human tissues of protozoa. But with the advances of chemotherapy we have in the sulphanilamide group of drugs a specific protoplasmic poison against bacteria leaving the human host uninjured in therapeutic doses (Domagk, 1935).

Among this group which has proved sufficiently effective for clinical trial are several which may be considered under three headings:

GROUP 1. Those in which the substitution has taken place in the amino group.

Prontosil Rubrum (used both as base or hydro-chloride) —4 Sulphonamido 2: 4 diaminaozobenzene. *Prontosil soluble* is a di-sodium salt of Prontosil rubrum. *Proseptasine* (M.B. 125) also known as Septasine or Setazine. It is para-benzyl-amino-benzene-sulphonamide with a very little toxicity. *Soluseptasine* is the di-sodium salt of the above.

GROUP 2. Those in which the substitution has been made in the sulphonamide group.

Diseptal-A or Disulphonamide or Uleron. M & B 693 or Dagenan or Sulphapyridine. In this one hydrogen atom of the $SO_2.NH_2$ is substituted by a basic pyridine group. *Albucid* —para-amino benzene sulphone acetamide. *Quinoline sulphonamide* is being tried against *plasmodium vivax* and *plasmodium knowlesi.*

GROUP 3. A sulphone group unrelated to sulphanilamides chemically; they have a similar bactericidal action but because of their high toxicity they are not of great clinical importance *e.g.,* Rodilone.

Sulphanilamide is a crystalline odourless powder almost tasteless and sparingly soluble in water. Sulphanilamide and its allied compounds contain at least one benzene group, one amino group and at least one sulphamido group.

PHARMACOLOGY

It has been found that for the effective action of these drugs three things are necessary, an amino group attached to the benzene group, a sulphamide group similarly attached and these three should be in the para position. The change to the ortho or meta position of the radicals lessened the activity of the drug and so also did the replacement by another radical for the amino group or the sulphonamide group. The activity is in the sulphonamide part of the drug and sulphanilamide is weight by weight 4 times as effective as prontosil rubrum in spite of the fact that Domagk says that the azo dyes are more effective. Administered by the mouth or given parenterally these compounds are readily absorbed, effectively penetrate all tissues including the cerebrospinal fluid and excreted by the kidneys.

The maximum concentration of 10 mg. per 100 c.c. of blood is reached between the third and the fourth hours after the administration of 1 gram (2 tablets or 15 grains) of M & B 693. The concentration remains at 10 mg. for 24 hours after which it quickly drops to 0 mg. within the next 24 hours. The concentration in the C. S. F. approximately follows the same course but is half of that in the blood. This explains the necessity of giving repeated doses at short intervals to maintain a high concentration in the blood or the C. S. F.

The different views put forward to explain their action were:

1. They have a stimulating action on the specific and non-specific body defences. This view is given up as it has been found that there is a possibility of a relapse when treatment is stopped early, rather they may hinder the immunity formation with a resultant latent infection without the means of combating it. 2. They neutralize the toxins of bacterial action. 3. They act on the bacteria themselves, either as germicides (bacteriolysis) or in some other subtle fashion by interfering with the invasiveness or the ability to multiply (bacteriostasis). 4. Some combination of the above.

McIntosh and Whitby have shown that these drugs do not stimulate the leucocytic or phagocytic activity. They do not affect the speed of production or the quality or quantity of the specific immune bodies, that both *in vitro* or *in vivo* these drugs are not instantly active and that there is a quantitative relationship between the effective dose and the number of bacteria affected. They are active on the highly virulent organisms and those in the logarithmic phase of multiplication. They are inactive on rough organisms. They are not simple germicides. They probably act by neutralization of some metabolic function or enzyme activity. They are highly selective in their action and hence the nature of the infecting organism should be known before administering this remedy.

They are excreted in the urine and can be detected within 50 minutes of oral administration and are completely eliminated in 50 hours, 60 per cent being eliminated in the first 24 hours. When given in adequate doses they are excreted in bactericidal concentration in the urine and the prostatic secretion but in smaller doses they are not effective. They act better in an alkaline medium. They are also excreted in the sweat and the amniotic fluid and milk. This is all a process of simple diffusion. The excretion may be delayed if there is impaired renal function. Hence there is a cumulative effect with a tendency to produce ketosis and so it is advisable to give sodium bicarbonate during the treatment.

TOXIC EFFECTS

The toxic effects may be mild or serious. In the mild type there are headache, vertigo, nausea, mild vomiting, general malaise and slight cyanosis. The treatment need not be curtailed for these effects. The severe toxic effects are marked and persistent cyanosis, persistent dyspnœa, skin reaction—exfoliative dermatitis, photosensitization of the skin and skin rashes, diarrhœa, hyperpyrexia, or subnormal temperature, polyneuritis (peripheral neuritis), optic neuritis, severe prostation, blood disorders with or without jaundice, leucopena, agranulocytosis, hæmolytic anæmia.

The cyanosis is due to sulphæmoglobin and methæmoglobin in the blood which is more when the intestines contain sulphur, hydrogen sulphide, or sulphates, when H_2S combines with hæmoglobin the sulphanilamide acting as a catalyst. This can

be prevented by avoiding purgatives which give rise to liquid stools, sulphates and sulphur containing foods or drugs *e.g.*, eggs. It is also advisable to avoid coal tar derivatives in conjunction as the benzene compounds are less toxic than the phenyl sulphonamides.

Hyperpyrexia rising to 102°F within 7 to 14 days of the institution of sulphonamide treatment is due to liberation of lysed bacteria. Skin rashes are of the morbilliform or purpuric or scarlatinal type chiefly if exposed to sun or ultraviolet rays. Regarding the blood changes it is advisable to take a full blood count every third day if patient receives treatment for more than 7 days.

THERAPEUTICS

The following infections are susceptible to sulphonamide group of drugs:—

Streptococcus hæmolyticus, streptococcus viridans, enterococcus, bacterium coli, other coliform organisms, diplococci, claustridium welchii, the quinoline combination is being tried against monkey malaria.

Prescribing Hints—1. Be sure of the infection.

2. The maximum dose per day is 5 grams for an adult, 150 grains or 10 tablets, when the temperature comes down it should be reduced to 3 grams.

3. If the ampoule of injection is not available and only when the patient cannot take the drug by mouth 0·8% of sulphanilamide in physiological or normal saline may be used for parenteral administration.

4. The acute infections are more amenable to treatment than the chronic except perhaps gonorrhœa.

5. It is essential to realise that sulphonamides will not disperse a collection of laudable pus. The drug is quite inactive when the bacteria are surrounded by a medium of pus but they will act well once the pus is drained.

6. They have no action on the filter-passable viruses but they are valuable for the secondary coccal infections which are a relatively common complication over a primary disease. They are being tried in trachoma, etc.

7. When used at all use in full therapeutic doses or withhold them completely. The use of fractional doses is one of the commonest abuses of the drug.

In Streptococcal Infection:—It has been found that there are three factors in the pathogenic action of the streptococci.

1. The production of hæmolytic toxin causing destruction of R. B. C. and leading to anæmia.

2. The erythrogenic factor producing skin rashes, *e.g.*, rashes: cellulitis, erysipelas or scarlet fever.

3. Invasiveness and tissue destruction with pus formation and septicæmia.

The sulphanilamide group is most effective when invasiveness is most predominent and if they do not act then we are dealing with an infection localised in cavity. They act best in cellulitis, erysipelas, acute tonsillitis, meningitis, peritonitis, puerperal sepsis and septicæmia. Their action is variable in empyema, osteomyelitis, otitis media, mastoiditis, pneumonia, cystitis, pyelitis, tonsillar abscess, and scarlet fever.

In Diplococcal Infection:—In the diplococcal infections, *viz.*, meningococcal meningitis, pneumonia and gonorrhœa, M & B 693 holds the field. Then come sulphanilamides for meningitis as they are more easily aborbed into the theca than the prontosils. Uleron and albucid come next in the treatment of gonorrhœa. M & B 693, uleron and albucid are not decomposed into sulphonamides in the system. If the rapidity of action is required as in meningitis or if the drug cannot be taken by mouth then the di-sodium salt of M & B 693 (soluble) is given intravenously. As the solution is highly alkaline 2 to 3 c.c. of the solution is diluted with 10 c.c. of blood and slowly injected intravenously by alternately injecting and withdrawing the blood till the whole amount is injected. At the next sitting another vein is used otherwise there will be sclerosis.

With high doses of sulphanilamides the patients look ill due to cyanosis while with M & B 693 they feel ill due to nausea and depression.

In Pneumonia:—M & B 693 holds the field. The sulphanilamide is effective in type III pneumonia. The effect is that it controls the temperature within 24 to 48 hours but the pathological course of the disease is not shortened.

The best method of giving M. & B. 693 in pneumonia is as follows:—Give 3 to 4 tablets every 4th hour for three doses. Then given 2 tablets every 4th hour till the temperature falls. Later give 1 tablet every 4th hour for four days. If the patient cannot take it by mouth then M B 693 soluble may be tried. The usual precautions of nursing should be followed.

In Gonorrhœa:—The common drugs used are M & B 693, uleron and albucid.

Doses:—3 grams or 6 tablets for 5 days, followed with 1½ grams or 3 tablets daily for the next 5 days. Do not prolong the treatment after ten days but alternate it with ordinary alkaline treatment with or without neotropine or methylene blue, for the next 2 weeks. Repeat like this for three succeeding months. Local treatment should not be discontinued.

Uleron:—Give 2 tablets three times a day for three days Give a gap of 4 days and repeat like this for 4 weeks. Give a gap of one month when the alkaline treatment with or without neotropine or methylene blue with kava kava compound may be given. Repeat 3 such courses.

Sometimes generalised peripheral neuritis is liable to happen. Treat this with massive doses of vitamin B. Albucid is another drug free from toxic effects used in gonorrhœa.

Coliform infection and claustridium welchii:

Sulphanilamide is the drug of choice except in cl. welchi where M & B 693 is the drug of choice.

Proseptisine is less toxic milder in action but acts better in bacterium coli than in streptococci.

Soluseptasine is injected if nothing can be given by mouth but as it is excreted rapidly large doses at frequent intervals are required to maintain the concentration.*

* A paper read before the C. P. and Berar Medical Association on 21.9.40.

TUBERCULOSIS PROBLEM IN INDIA

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There are at present nearly 34 sanatoria in India and all these are maintained from philanthropic and therapeutic view points but the conception of these institutions in other countries is entirely different from that of ours. There, these institutions are not mere alms-houses for the relief of physical wants but the light houses that flash the message of public health and education through the fog, that carry light and knowledge and raise the health standard of the individuals and consequently the health standard of the community.

One who contemplates the scheme must keep this conception in view and then proceed further. Let our clinic and sanatorium or hospital do the dual function of charity and prophylaxis. Let not the future contemplated institution be an old boarding house type of sanatorium. Let it not be only a place of isolation and seclusion but a place of education for laymen, medical men and women, and a place through which should be spread activities in field organization. Let it not be a refuge for a few chronic cases but an institution to serve as a centrifugal and centripetal force for anti-tuberculosis campaign in the towns of India.

Our aim should be to control tuberculosis, to achieve this, we must thoroughly recognise local conditions and not follow the line of work done in sanatoria which are situated on the hills and where patients who can afford to pay the expenses of treatment go from all towns. Here we have to deal with patients who cannot afford to pay even for a meal a day. We must put the economic condition of the people in the forefront. The programme of tuberculosis control in each town must therefore be tailor made. The details of the plan must be fitted to the needs of the town. Factors operative in one town should not be considered applicable in all respects to another town of the province.

In industrial towns, where labourers live in very congested localities, a room of 10′×12′×12′ is rented to a poor labourer by the land-lords at Rs. 2/- or 3/- per mensem and is occupied by some 4 to 6 labourers—this small room serves as a kitchen for all in the day time and at night as a bed-room with doors closed in winters.

The scheme will have to be evolved, therefore, to suit local conditions. In such towns vigorous educative propaganda will have to be continued permanently on account of the wretched conditions prevailing and of the migratory nature of the population due to the agriculturists migrating to such towns during the time they have no work on their fields in the villages. *Field work* in addition to therapeutic agency is, threfore, most essential in every town. By neglecting field work we will be allowing extermination of the labouring class of people. It is they who suffer most from this disease. In India our economic condition has to be given due weight.

In India, clinics, hospitals and sanatoria are maintained only on philanthropic grounds, the incidence of tuberculosis, therefore, will not be reduced and ultimately these institutions will prove a failure. A comprehensive scheme on prophylactic grounds is, therefore, required to be considered by the Government of our country. I shall, therefore, try to give in details as to how we should proceed and see as to what we need in making the scheme effective. Our needs may be considered under the heads—therapeutic, economic, public health ones, education and social service. All these are essential and sure to benefit the tuberculosis patients.

Therapeutically, a sanatorium stay, for even a short period of time is advisable for every case of tuberculosis but the practical application of this principle is not economically possible. The sanatorium itself cannot meet the needs of tuberculosis. To ask patients to come to the clinics in an *ekka* or on foot except on their first visit is to deprive them of the benefit they receive from physical and mental rest, so essential in the treatment of tuberculosis.

Tuberculosis therapy, therefore, in most instances must be provided through the medium of home treatment, and this also in its turn must be administered under the careful supervision of physicians either in private practice or on the clinic staff. This plan of treatment, in order to make it effective, must be unified. Care should be taken to infringe on the prerogative of private practitioners nor on the obligations of the Public Health Staff. Their activities are very necessary in this field.

In other countries medical aid excepting infectious diseases is not provided by the State but by private practitioners, whose charges of medicine and attendance are cheaper than in India. In short, the most important field of treatment of tuberculosis is in the home of the patients. It is there that the seed of tuberculosis is planted. Therefore, it is there that we should go and fight our battle against the implantation of the seed of tuberculosis and make barren the ground on which it has grown. It should, therefore, be our duty to popularise home treatment and make it acceptable to every one. The protracted sanatorium treatment and costly specialistic care are not absolutely essential in the cure of tuberculosis. More time, more money must, therefore, be spent in the field or in other words in the homes of patients.

I would therefore strongly recommend that for an industrial town one whole time medical officer, with adequate conveyance allowance be appointed exclusively for treatment. He should administer proper medical aid to people who can remain at home without working, and under satisfactory housing, hygienic and dietetic conditions. They should be given free medical aid as well as free attendance at their homes. These should be visited once a week by rotation; at least 20 patients a day can thus be visited by the medical officer even if he has to visit them in different muhallas. In poor families where the wage-earner is stricken, the patient should, however, be recommended for admission to tuberculosis hospital and his family supported by charity from people approached by a care taking committee.

In the *home treatment,* the visiting medical officer will have the opportunity of surveying the economic status of the

patient. He will in each case be able to decide just how much he may hope to do with the facilities at his command. He can subject every individual case to economic analysis and can govern the supervision of the case so as not to impose such financial burden as the family is unable to bear. He will prescribe a dietetic or hygienic regime within the financial means of the patient. The physician will carefully outline every phase and every angle of the treatment which will not only be impressive but will also enable him to gain confidence of the patient and put the patient in most favourable mental attitude for treatment. By interesting himself in the financial problems of the patient, during the course of treatment he can to a great extent relieve the patient from mental worries which have often been the cause of serious breakdown of this general resistance against the disease.

But before taking up the home-treatment of a patient, he should be allowed, where possible, a short period of residence in the hospital or sanatorium to inculcate in him the spirit of regularity in his habits in day to day life. The education, in respect of hygienic and dietetic conditions and regular habits, of the patient is of paramount importance and this can best be imparted in the sanatorium environment.

The clinic staff should examine the inmates of the houses wherein death of a patient has been reported to be due to tuberculosis. The mortuary clerk must, therefore, be instructed to furnish them with information required to enable the Medical Officer of the clinic to examine the contacts of the victim; for educational need the medical officer attending the patients at their houses will be the fit person to create hygienic sense in the family. The private practitioner is frequently desirous of consultation, but the economic situation of the patient does not permit him to advise a measure which would mean additional expense. This can also be best met with by the clinic staff. Laboratory and x'ray service must, therefore, be given free of charge or at nominal charges to cover the expenses of the clinic incurred under this head and this offer of service should be freely advertised to effect co-operation possible with the private physician who in his turn will report the existence of T. B. cases in a locality under his charge.

The need of social service to a tuberculosis sufferer is the most important but most difficult to meet. So the co-operation and co-ordination of all service agencies in all towns should be secured if proper and prompt economic relief is to be obtained for the sufferer.

Proper nursing and care of tuberculosis patients, creating home sanatorium atmosphere, relief of physical needs and supply of every day necessities of life that the patient cannot afford, are the chief items of services to be looked after by public or private agencies. Sewa samitis, endowment funds and charitable trusts should be roped in and their sympathy enlisted. In other countries they have welfare agencies such as mother's pension fund, rehabilitation funds and funds for specific purposes such as the securing of railroad transport facilities for tuberculosis patients. No such agencies exist in India. In America there is a federal fund of one million dollars that is available for vocational training of persons injured through accident or otherwise. It is also available to arrested cases of tuberculosis whose former occupations are unstable.

In Japan laws have been passed to provide for the families of tuberculous patients. An agency has, therefore, to be created to provide for the physical wants of such patients that cannot be admitted to a tuberculosis hospital or sanatorium.

Prevention and cure of tuberculosis is a question of economics. Tuberculosis is an economic disease entailing physical disability of long duration as rest, which is so essential, is usually prescribed. The patient, therefore, is put to financial embarrassment, especially where he is either the sole supporter of his family or an important contributor to its resources. In such cases financial relief becomes almost an immediate necessity. A public health tax be therefore recommended to be imposed on every individual living in town. The income thus derived should be earmarked for providing medical relief and other necessities of life during the period of illness of the bread winter of a family.

In other countries the best and the most useful social servant is the trained field nurse, who is almost always well educated and in many instances belongs to high families thereby enjoying the confidence of the people. She is trained to analyse and study thoroughly not only the physical but also the economic needs of the patient. She commands respect and her word is obeyed ungrudgingly. She understands the sick and, as part of her routine duty, tries to understand various economic phases of family life of the patient and to fulfil, as much as possible, the ends from every view point as a social relief worker.

The duties of a field nurse have not been well understood in this country. She is the most valuable asset to the community. With her humanitarian instinct and her public health knowledge, she is an ideal social service liaison officer. She is the connecting link between the patient and the relief organization. She is qualified to survey the social service needs of the patient and has the advantage of being financially helped by relief organizations whom she refers the needs of sufferers and thus secures the co-operation so essential in field work of tuberculosis. In this country there is no such agency which is considered to be qualified to take up the duties of a field nurse from humanitarian view point. Such an agency has therefore to be created.

To replace the field nurse, a health institution is being urged upon by us to be employed in making necessary inspection in homes, to follow up cases and to note down the contact of open cases of tuberculosis patients and to convey the message of sanitation to members of the family of the patient. It has to fill in certain social service charts recommended for the purpose. From public health stand point, this is most essential but to have health visitors of requisite qualification from outside the medical profession is not possible. I, therefore, am strongly of opinion that as far as field work is concerned services of male and female doctors be recruited from public health department or educated ladies be trained in the clinic to replace the field nurse of the west. The pay recommended for efficient health visitors should be sufficiently attractive so as to ensure success in securing the best personnel for the job.

Associated activities. The following are the most important items to be taken up from the prophylactic view point. Open air school for children of tuberculosis patients; clinic for children diseases, and part time clinics for diseases simulating tuberculosis should also be taken up.

In other countries they have preventoria for children of the consumptives and children are at once removed to these institutions as soon as an open case of tuberculosis is found in the family.

It must not be forgotten that it is the child who receives the infection most in his tender age, those who receive infection during the first year die of it within one year and others die within 5 years, after which from 5 to 15 the mortality comes down to an insignificant figure and it is in the age of adolescence that the mortality again rises. In India there are very few such clinics.

The road to health is lighted by knowledge, it must be all embracing and be disseminated to men of all ranks in a community. The children and the women of the family should be made to possess sufficient knowledge to protect themselves from infectious and contagious diseases. The tuberculosis patient himself should be trained to establish sanatorium atmosphere at home. He must develop clean habits and should know the dangers of careless coughing and spitting. He must see to the proper disposal of the sputum. He should be made conversant with the beneficial effects of fresh air, rest and carefully graduated exercise, so essential for his person. Thus hygienic sense should be imbibed in every member of the family as it forms such an essential part in the control of not only tuberculosis, but all other contagious and infectious diseases.

In America they have got the health publicity service with officers whose duties are to dessiminate health knowledge by delivering speeches, publishing literatures in educational institutions and carrying on propaganda through weekly and daily papers and through the radio and the movies. In India hygienic educative propaganda has no place in the health department. Such system of health educative propaganda should be introduced in India and efficient hands appointed to carry on the system.

Special Training in the Clinics. Considering the high incidence of tuberculosis and paucity of the medical practitioners to cope with the demand for tuberculosis treatment, other countries provide special facilities for specialised training, but in India it is the privilege of a chosen few. There are allopaths, homœopaths, vaids, and hakims who are allowed to practise medicine and each of them does treat tuberculosis patients. In the early stages of the disease a vaid or hakim is often consulted and it is in the later stages that an allopath is approached for medical advice. Special training therefore must be given to all medical practitioners to enable them to take advantage of diagnostic and surgical aid in the clinic and hospital. I am of opinion that as long as other systems of medicine are allowed being practised the practitioners must also be trained in prophylaxis of the disease.

Statistical Record. The system of keeping statistical records in India is not perfect. To determine the activities of anti-tuberculosis campaign certain charts and forms have to be developed from time to time and should be so devised that these may tell a correct story of existent conditions and the progress accomplished in the work. All statistical data should be referred from the dispensary units to the supervising agency and should be filled in such a way that statistics on any given phase of the work may readily be obtained and utilised. A separate office to carry on anti-tuberculosis campaign and to keep up proper records should therefore be maintained.

Prevention of Tuberculosis and raising of funds. In America and Japan and perhaps in Western countries the city council has the power to make rules and regulations and promulgates them in the forms of ordinances in relation to the sanitary condition of the city and for the prevention and suppression of such diseases. The health officer is empowered to adopt measures to arrest communicable diseases, and these measures are always effective in controlling spread of such diseases. He isolates them by coercive and persuasive means to free hospitals maintained for this purpose but here in India we neglect most of such measures for want of fund.

To raise funds legislation is necessary. No prophylactic propaganda can succeed without a legislation and such legislation must be the basis of every clinical control system. Legislation founded on facts and science is the only conceivable basis for unified control of tuberculosis as well as other communicable diseases, but it must be remembered that without demonstrating the facts and depicting the need for public health protection against tuberculosis, these legislations will not be welcomed.

Public health tax per capita per annum and house tax on landlords can be imposed so as to form a good source of income towards this head. Many other sources can be tapped by legislation. Many traders have each a Dharmada Khata. This money comes from the pockets of the purchasers on the pretext of being spent on charitable purposes. They can be made to direct their expenditure to right channels. If the Government of the province is approached suitable means can be evolved after creating favourable atmosphere for enacting laws to raise funds for this purpose. "It is not enough to help the feeble up, but also to support him afterwards" must be our motto.

Coercive Legislation. Having provided with attractive facilities for the care of tuberculosis patients and for isolation of those who can communicate the disease to others and in case where this is impossible, of those who can easily become victims, preventive measures must be enforced with tact and the utmost degree of sympathy. Enforcement should, of course, pivot round the open cases. In the first instance, it should be complied with by friendly adjustments. In most cases the physician treating him will succeed. In some instances the members of the family realise the danger and actually request that the patient be removed. In other cases persuasion may suffice. Coercive measures in the past failed on account of lack of sympathy on the part of those who administered them. It was seen that tactful officers-in-charge of anti-plague operations were always welcomed and they received the co-operation of villagers in getting the stores burnt, having the villages evacuated and the unaffected persons

inoculated, while the tactless were brutally assaulted on the other hand. In certain instances, you will have to deal with recalcitrant individuals who are deaf to all arguments and impervious to all methods of persuasion. Such people are most selfish or have hospital-phobia; for such cases hospitalisation will have to be carried out provided that adequate facilities for the proper care of patients are available and the officer charged with this duty understands the conservative nature of Indian homes. If the Officer does not perform his duties tactfully and in a manner tempered with mercy he will not succeed. Sometimes a patient is resentful, obstinate, arrogant and even abusive. He must if he is tactful take all these demonstrations on the part of the patient evenly and calmly and must not think that the patient means anything to his person. Such an officer shall successfully carry out effective segregation of open cases with no complaints from the public or any other quarter.

In counting the estimate of anti-tuberculosis campaign it has been pointed out in most unequivocal terms that unless the scheme is considered in its entirety, a clinic or a hospital will not be conducive to any effective results and that hospital or a sanatorium with a few beds will in the near future become a dumping ground for incurables.

Another point worth considering is that no field work has been done in this part of the world. An institution, that has already functioned for a period of years has, of course, its previous budget estimates to fall back on, finds this task easier. Whereas our present scheme is a new one, we have therefore a responsibility not only for successfully conducting the scheme of to-day but also for the coming years. We should, therefore, plan our scheme in such a way that the organisation continues not only to function smoothly but also to expand in the future. It should be remembered that in India there is a general tendency to have smaller institutions without remembering the fact that the smaller the institution the higher will be the expenditure. The expenses incurred on the staff generally remains the same for 50 to 100 beds. In all big sanatoria in India the income derived from paying patients generally equals the amount paid to the staff. Naturally, therefore, there is a tendency to welcome a greater number of paying patients than non-paying ones. There is, therefore, a general complaint from non-paying patients that they are not properly attended to. Missionary spirit must therefore be counted upon before selecting candidates for appointment in the sanatoria. We should, therefore, allot 50 beds to paying or part paying patients and the charges should be in accordance with the facilities for accommodation and nature of service rendered to patients and the amount charged should range from Rs. 30/- to Rs. 120/- per month and Rs. 240/- for Europeans or those willing to live in the European style.

The fourth point to be favourably considered is that we must administer surgical therapeutics where such procedures are indicated.

In appreciating the scheme it has to be considered whether the expenses recommended are higher or lower per capita per month in comparison with that of institutions in other countries and whether such expenses would be compatible with the efficiency of the institution and whether the scheme presented covers all the avenues of work required in the control of tuberculosis.

I should like therefore to place before you a comparative statement of expenditure incurred in different renowned sanatoria in India and elsewhere, with a view to secure therapeutic, philanthropic and prophylactic achievement.

I should also like to mention here that economic, educative and hygienic condition prevailing in other countries are not so disappointing as in India. There are enormous difficulties to be surmounted in carrying out such schemes in India.

Here it is worse than that prevailing among Mexicans and Negroes in America. There the Chicago municipality spends Rs. 311-10-0 per head per month on a tuberculosis patient admitted from Negro or Mexican race, whereas our government would hesitate even to explore our financial resources to meet the hygienic need in India.

Madanpalli, Delhi and Bhowali sanatoria with a living population 236, 60 and 142 spends Rs. 53-10-2, Rs. 55-0-0 and Rs. 56-11-10 per head per month respectively and Jadavpur the same amount approximately. In all the above institutions excepting Chicago Municipality the cost shown is for sanatoria whereas in the scheme presented for towns in India, due regard has been paid for linking the therapeutic activities of the institution with that of prophylaxis of the town and ought, therefore, be profitably adopted.

Splitting up the budget into more important items, it will be found that for the operation of the whole scheme five medical officers, have been suggested. No doctor can attend more than fifty patients a day, hence the number is not large.

Next comes the question of nurses and ward servants. Fourteen ward servants on Rs. 20/- have been suggested for 200 patients of a hospital, sanatoria and clinic patients and this appears most reasonable.

The troop of compounders should be strengthened from one to four and their pay must be high enough to keep them contented or they will prove exacting to patients and the whole fabric of administration will be spoiled.

CURRENT MEDICAL LITERATURE

MEDICINE

Management Of Patients With Heart Failure

Levine (*J. A. M. A.*, 1940:115:1715) writes that in the treatment of congestive heart failure the following measures should be adopted:

Rest. It is of primary importance. Although complete bed rest is often desirable in the treatment of heart failure, careful observation is necessary to see that the very symptom which is being treated, *viz.*, breathlessness is not made worse. There will be times when one should deliberately keep patients in a chair to avoid this danger or to undo the harm produced by the recumbent position. There is in the recumbent position a decrease in the total lung volume of over 300 c.c. and a decrease in the vital capacity of the lungs of about 200 c.c. and very likely these figures are even greater for patients already suffering from pulmonary congestion. When the patient is in bed the latter should be made comfortable with pillows and back rest as circumstances require to obtain relaxation of the body.

Digitalis. It is the mainstay of the drug therapy. The simplest method is to use the drug in the form of a pill, tablet or capsule; tincture will also be useful provided one can know exactly how much digitalis is taken. After a therapeutic result has occurred it is generally advisable to administer a so-called maintenance dose. Toxic effects that usually necessitate temporary omission of the drug are nausea and vomiting (not ascribable to heart failure and causes other than the drug), yellow vision, diarrhœa, certain irregularities of the heart such as extrasystole, heart block, undue slowing of the heart-rate. It is indicative in congestive heart failure whether the blood pressure is high or low, whether the rhythm is regular or grossly irregular or whether the rate is rapid or slow. It is to be used in myocardial or valvular disease whether the fever is or is not present and whether the basal metabolism is normal or elevated. The results to be expected may differ under varying circumstances but the indications for its use remain the same.

Diet. Karell diet consisting of a glass of milk four times a day may be helpful for a few days to be followed by a small quantity of a general house diet. Salt should be reduced to a minimum. Fluid intake though restricted to 1 litre a day by many should be modified specially for elderly persons. A bowel movement once a day or every other day by simple cathertics or enema will be of more gain than excessive purgation causing discomfort to and weakening effect on the patient

Sedatives. One hypodermic injection of morphine 1/6 gr. often alters the picture of the patient in one night's time and should not be withheld when indicated. Other sedatives such as chloral hydrate, phenobarbital and barbiturates may be tried.

Diuretics. A diuretic is next in importance to digitalis. Theophyllin and amynophyllin in doses of 2 to 5 grains may be given orally three times a day with benefit. However, mercurial diuretics have been found most effective in getting rid of œdema and should be given intravenously or deep into the muscles (average dose is 1 c.c.), if there is no acute nephritis. Ammon chloride 15 to 30 grains three times a day may improve results.

Mechanical methods. These consist of thoracentesis when there is hydrothroax, abdominal paracentesis when there is an embarassing amount of ascitis, the use of Suthey tubes in rare cases of stubborn massive œdema of the legs, the use of phlebotomy (removal of 400 to 500 c.c. of blood) when there is marked venous distension and engorged liver or in cases of acute pulmonary œdema when improvement does not occur following morphine injection and oxygen therapy.

When satisfactory clinical improvement has been reached the patient may be gradually allowed to get out of bed and to increase his activities. The patient's subsequent life will need revision and lessening of burden both physical and mental is necessary.

Preventive and curative means. Infections, over-exertion, pregnancy, anæmia, prolonged emotional strain, obesity, hyperthyroidism or any factor that significantly increases the work of the heart should be avoided or minimized. Finally heart failure due to thyrotoxicosis, heart failure due to myxœdema, etc., may be treated specifically and cured.

Pulmonary Embolism And Heart Disease

White (*Am. J. Med. Sci.*, 1940:200:577) summarizes his experience of 20 years with pulmonary embolism in association with heart disease by recounting the increasing frequency with which he has recognised the condition, the possible confusion in diagnosis, the frequency with which it complicates heart disease and the helpful signs of its presence. The increase in frequency has not been actual but in a large part due to better recognition of the condition. His analysis of 75 definite cases showed that 28 cases simulated and 47 complicated heart diseases and the latter group comprised of coronary disease with or without hypertension in 26 cases, rheumatic heart disease with mitral stenosis and auricular fibrillation in 15, hypertensive heart disease in 2, patent ductus arteriosus with subacute bacterial endocarditis in 1 and cardiac enlargement with no other evident abnormality than chronic auricular fibrillation or flutter in 3. Peripheral phlebitis was evident only in 4 cases but the author points out from his autopsy experience that the majority might have shown such a lesion if the veins could have been explored. Pulmonary embolism and infarctions are easily overlooked specially in the presence of heart failure when they are most common, or they are erroneously diagnosed as pneumonia, congestive heart failure or coronary thrombosis. Clues to diagnosis lie in unexplained fever, leucocytosis, tachycardia, faintness, prostration, dyspnœa or even jaundice in a patient with heart disease.

Dysphagia In Cardiovascular Disease

Bloomfield (*Am. J. Med. Sci.*, 1940:200:299) points out that there are five cardiovascular lesions which may produce, or at least be associated with dysphagia and they are diltation of the left auricle, pericardial effusion, aneurism of the aorta, dissecting aneurism and such congenital anomalies as right-sided aortic arch, double aortic arch and aberrant right sub-

clavian artery. Of these aneurism of the aorta and particularly of the descending aorta is by far the most common cause of dysphagia. Even so, dysphagia is rare in this condition compared with dyspnœa, due to compression of the air passages. Dysphagia is also rare in pericardial effusion but when present the effusion is usually very large. Routine screening of the patients with mitral stenosis reveals gross distortion of the œsophagus as a result of pressure from an enlarged left auricle but only in a few is there any delay in the passage of barium down the œsophagus and a very small minority of these complain of any difficulty in swallowing. The author reports such a case in which dysphagia was a prominent symptom and he believes that the dysphagia was due to œsophageal spasm secondary to pressure by the enlarged left auricle.

Peripheral Neuropathy Due To Vitamin B_1 Deficiency In Diabetes Mellitus

Fein and others (*J. A. M. A.*, 1940: 115: 1973) from a study of 422 ambulant diabetic patients observe that 9 patients (2·1 per cent) had a symmetrical peripheral neuropathy characteristic of the peripheral neuropathy found in subjects having proved vitamin B_1 deficiency and that treatment by daily use of 10 mgm. of thiamin chloride by mouth without otherwise changing the regimen, resulted in a cure of eight subjects and improvement in the ninth. Indifferent and inconsistent results were obtained on treating neuropathy of single nerves or the vague aches and pains of the diabetic patients. The authors hold the view that the symmetrical peripheral neuropathy beginning first in and involving primarily the lower extremity of diabetic patients responds to thiamin chloride and is due to vitamin B_1 deficiency.

Clinical Experience With Sulphamethylthiazol

Brown and Harrel (*Am. J. Med. Sci.*, 1940:200:618) reviews their clinical experience with the use of sulphamethylthiazol in 30 cases of pneumonia, 7 cases of septicæmia, 5 cases of acute bacterial endocarditis, 5 pelvic infections, 4 osseous infections, 25 cutaneous infections, 13 infections of the ear, nose and throat, 3 urinary infections and 14 cases of miscellaneous infections, a total of 106 cases. The drug was used orally in the majority of cases in doses similar to sulphanilamide and sulphapyridine. Staphylococcus and diplococcus pneumoniæ (type I) infections in particular seem to respond to treatment. With the exception of lower motor neurone involvement in 3 cases and of cutaneous eruptions in 9 cases, toxic effects seemed to be less than those of sulphanilamide and sulphapyridine. Significant nausea and vomiting occurred infrequently. Sulphathiazol when given orally produces concentrations of the free drug in the blood similar to but somewhat lower than those that resulted from sulphapyridine. The danger of lower motor neurone involvement makes it unwise to use it for mild infections caused by staphylococcus aureus but a fulminating infection which carries a high mortality rate far outweighs the danger of toxic effects of the drug and this drug or a related preparation may be indicated.

Rectal Sulphanilamide

Turrel and others (*Ann. Surg.*, 1940:417) report on the comparative study of the absorption of sulphanilamide by colon and rectum from solution of the drug and from suppositories containing sulphanilamide. The concentration of the drug in the blood after the suppositories was inadequate but the solution gave a concentration comparable with that resulting from administration by mouth. By giving 12 gm. of sulphanilamide in course of 48 hours they found the total concentration in the blood to be 10 mgm of free and conjugated sulphanilamide. The authors suggest that the total dosage should be the same as that given by the mouth. One case suffered from nausea thus pointing to the fact that the vomiting of sulphanilamide is in part, at least, of central origin. Poor solubility of sulphapyridine in water stands in the way of using an aqueous solution per rectum but the difficulty will perhaps be overcome in other ways.

Blood Urea And Plasma Chloride In Experimental Haemorrhage

Black (*Lancet*, 1940:2:618) writes that a considerable increase in blood urea is a well-recognised concomitant of severe hæmorrhage into the digestive tract. The experiments done show that overactivity of the suprarenal glands cannot be an important causal factor and they suggest that loss of blood is less important than the fact that the blood is effused into the bowel when the nitrogen is reabsorbed. The greatest increase in blood urea have been recorded in patients deprived of food and fluid, whereas patients who have had an adequate intake of food and fluid show a relatively slight degree of azotæmia. Thus the slight increase of blood urea proper to hæmorrhage may be aggravated by absorption of nitrogen from the blood in the bowel, specially when dehydration is permitted. Little can be done to prevent nitrogenous absorption from decomposing blood but dehydration calls for energetic treatment by a diet of adequate fluid content.

Cholagogues And Drugs Acting On The Liver

,Newman (*Practitioner*, 1940:145:361) mentions three important facts in connection with cholagogues and drugs acting on the liver and they are (1) that cholagogues are divided into two groups, *viz.*, one consisting of drugs which cause an increased secretion of bile and the other which empty the gall-bladder and thus increase the flow of bile in the intestine without necessarily increasing the amount secreted. (2) that in gall stone formation it is not so much an increase of cholesterol in the bile which does harm as a decrease in the bile salt content which keeps the cholesterol in solution and (3) that the biliary stasis is usually caused by reflex spasm and is very rarely the result of weakness of the gall-bladder muscle. Thus choleretics are indicated where secretion of bile needs stimulation; bile salts should be given when it is desired to make the bile a better solvent for cholesterol (or, of course, a better digestive juice for the absorption of fats, sterols and fatsoluble vitamins); cholagogues are rarely to be recommended but, to flush the biliary system or to relieve obstructions, sedative treatment is often very effective and is more indicated than stimulants of gall-bladder contraction. *Choleretics* Bile acids such as taurocholic, glycocholic, desoxycholic or dehydrocholic acids are most powerful choleretics. All of them, however, except dehydrocholic acid, increase the abosorption of sterols from the intestines and thus when choleresis without increased absorption

of cholesterol is required dehydrocholic acid should be chosen. Sodium salts are useless but potassium salts are better choleretics. Salicylates increase the volume of the bile produced but diminish its total solids. Purges including calomel have little or no effect but oil of pepermint, dandelion and radish are all choleretics. *Cholagogues.* Magnesium sulphate, fats, eggs, vegetable oils and vagal stimulant drugs have rapid action on the emptying of the gall-bladder. To eliminate reflex spasm of the gall-bladder continuous sedative therapy with tincture of belladonna in adequate doses is necessary. It is best to give alkali at the same time as high acid contents contribute to the biliary spasm and gall-bladder dyspepsia is often helped by sodium bicarbonate. A good vehicle is tincture of rhuberb and water. The three valuable remedies for the treatment of parenchymatous liver damage when choleretics and cholagogues are not only useless but harmful are glucose (oral and parenteral), calcium (oral and parenteral), and sodium bicarbonate (small doses, 10 grains thrice daily).

SURGERY

Leucocytic Changes In Acute Peritoneal Irritation

Kanfman and von Saal (*J. Lab. & Clin. Med.*, 1940:26:468) from the study of 132 differential counts in a group of 104 patients with various kinds of acute peritoneal irritation proved by operation or autopsy observe that a high percentage of immature polymorphnuclear leucocytes in the peripheral blood suggests acute peritoneal inflammation, almost always requiring immediate surgical intervention. A slight or absent shift does not, however, by any means, rule out severe intra-abdominal disease. They further point out that it is of utmost importance to recognise the significance of a high perecntage of immature polymorphonuclear leucocytes in the presence of a low total white cell count. It is often in patients with normal total white cell count that delay in operation seems safe to the surgeon, whereas less attention to the total or more attention to the degree of shift would aid considerably in diagnosis and prognosis.

Modern Trends In The Treatment Of Acute Appendicitis

Postma (*Rocky Mountain M. J.*, 1940:37:747) summarises in the following lines his observations:

The present mortality rate of acute appendicitis with peritonitis is formidable being about 40 per cent. By timely careful surgery it may be reduced to 10 per cent. The causes of this excessive mortality are: (*a*) self-catharsis for abdominal pain, (b) administration of morphine prior to surgical consultation, (*c*) operation by occasional operator rather than by a competent surgeon, (*d*) delay in operation, (*e*) mistaken diagnosis and ill-advised incision which convert a local into a general peritonitis, (*f*) extensive surgical procedures in gangrenous or perforative appendicitis specially in the aged, (*g*) injudicious temporizing or delay and (*h*) faulty post operative management. The diagnosis of appendicitis demands immediate surgery except: (*a*) cases with dehydration and acidosis which should be given glocuse and saline and then operated on, (*b*) late cases that are showing improvement and posesses definite palpable mass in the right lower quadrant, (*c*) cases of ruptured appendicitis with general peritonitis seen late on the third, fourth or fifth days who have marked sepsis, a pulse of 140 or more, abdominal distension or rigidity of the abdominal wall. In the last mentioned group Ochsner-Sherren delayed treatment is definitely indicated. Treatment comprises (*a*) Spinal anæsthesia. (*b*) Laparotomy by the use of muscle splitting incision laterally placed in the right lower quadrant. The operation itself should be carefully done, should be non-traumatizing and non-shock producing and every care taken to prevent the extension of the infection. (*c*) Most rigid post-operative care should be carried out—nothing by mouth, saline and glucose intravenuously to physiological tolerance, modified Fowler position, Wangeusteen duodenal suction continuously and hot stupes to abdomen for the relief of distension.

If these factors mentioned above are controlled there can be but one result and that is a lowering of the prevailing mortality from appendicitis.

Treatment of Mixed Tumours Of Parotid Gland

Patey (*Brit. J. Surg.*, 1940:28:29) from the review of the recent literature on the subject and analysis of the records of cases at the Middlesex Hospital observes that the natural course of mixed parotid tumors is to increase in size at varying rates, leading to a corresponding degree of deformity but otherwise causing no disability, that spontaneous malignant change in such tumors is too rare to be ignored, that surgical enucleation alone may be satisfactory but recurrence is quite common and in some the recurrence is directly responsible for death. There should not be any hurry to treat these tumors, sufficient period of observation being necessary to determine the rate of growth. Radical excision of the parotid is too deforming to be a routine treatment but is justifiable in exceptional cases. Irradition alone is not a satisfactory method of treatment but it may be a useful adjuvant. Enucleation followed by irradiation appears to be the best treatment for mixed parotid tumors.

Ten Commandments For The Treatment Of Compound Fractures

Thomson (*J. A. M. A.*, 1940:115:1855) gives below the following ten rules to be followed in the treatment of compound fractures:

1. Splint and immobilize a compound fracture at the scene of the accident and transport the patient with celerity and great care to a hospital adequately equipped for treatment. 2. Make an emergency case out of every compound fracture, giving the earliest possible adequate treatment. 3. Scrub the limb about and away from the wound with green soap and flowing sterile water for ten minutes. 4. Debride every wound thoroughly with proper respect for anatomic strucutre and close those wounds which experienced surgical judgment seems to justify. 5. Reduce after debridement every compound fracture and firmly fix the fragments in place. 6. Coat the wounds with crystals of sulphanilamide and give sulphanilamide or its derivatives orally as indicated. 7. Immobilize compound fracture, in a plaster of Paris cast, adequately fenestrated for the observation of the wound and the surrounding tissues. 8. Give in every case of compound fracture at once a prophylactic injection of antitetanus serum combined with the Bacillus Welchii perfringens serum. 9. Give a prophylactic dose of x-rays twice daily for 3 or 4 days over every compound fracture.

10. Use pectin therapy in all superficial open wounds (with gauze soaked in 2 per cent pectin solution).

Beta-Methylcholine Urethane: Its Use In Post-operative Urinary Retention

Staar and others (*Am. J. Med. Sci.*, 1940:200:372) in reporting on the action of beta-methylcholine urethane (B. M. C. U.) in healthy volunteers and in patients observe that B. M. C. U. is a promising useful agent in combating retention of urine not caused by organic obstruction. They further observe that by its use post-operative catheterization has been reduced to one-third of its former frequency. It is superior to doryl which has a similar action and this superiority depends on the lack of side effects which when occur are quickly controlled by atropine injection. The following is the detail of the treatment: B. M. C. U. in 2 mgm. doses is given thrice daily by mouth until voluntary or automatic voiding begins and then slowly the drug is withdrawn. However, if there is no action and the bladder becomes over distended, a bed-pan is provided with and a subcutaneous injection of 2 mgm. of B. M. C. U. is given. If no voiding in ½ hour the drug is repeated; if still unsuccessful within next half hour and if there is much pain the urine is taken out with a catheter. If the bladder gets over distended again 4 mgm. of the drug is injected and the dose is repeated in one half hour if necessary. If there is no undesirable side effect the dose may be inreased in the manner stated above until success is achieved. In some cases 10 mgm. was given. Any dose which empties the bladder once may be expected to have the same effect if retention occurs again. The successful dose is used until voluntary emptying is established. The provision of a bed-pan before the administration of the drug is an important detail of technique since the desire to void comes on quite rapidly in some cases; it can be resisted or it may pass off if preparations are delayed.

OBSTETRICS AND GYNAECOLOGY

Prediction And Prevention Of Pregnancy Accidents In Diabetes

White and Hunt (*J. A. M. A.*, 1940:115:2039) basing on an analysis of 61 completed diabetic pregnancies treated and studied at the George F Baker Clinic between 1936-40 point out (1) that an abnormal rise of chorionic gonadotropin after the 20th week to a level of 200 rat units per 100 c.c. of blood predicts in the diabetic premature delivery, still birth and neonatal death; (2) that these accidents are caused by a failure of production or of metabolism of œstrogen or progesterone and (3) that they are prevented by continuous substitutional œstrogen and progesterone theraphy in replacement doses. 61 patients studied fell into 3 groups: (*a*) Group I consisting of 25 cases whose hormonal balance was normal; (*b*) Group II consisting of 12 cases whose hormonal balance was abnormal and remained uncorrected and (c) Group III containing 24 cases whose balance was abnormal but who received substitutional œstrogen and progesterone therapy. The clinical course and outcome of Group I cases was uneventful, that is, none developed pre-eclamptic toxæmia and none had premature deliveries and fœtal survival was 92 per cent. Out of 12 patients of Group II 9 developed pre-eclamptic toxæmia, 3 had premature deliveries and fœtal survival was only 42 per cent. In Group III patients substitutional therapy resulted in the control of toxæmias and prevention of premature deliveries and the fœtal survival was 90 per cent. The plan of treatment suggested is as follows: Oral use of stilbesterol in doses of 40 to 120 mgm. daily and pregnolinine 10 to 40 mgm. daily—this treatment is continued but if the gonad stimulating factor called 'prolan' is not falling to satisfactory level after 2 weeks' treatment stilbesterol is given intramuscularly upto 50 mgm. No side reactions have occurred even after the massive use of the drug.

The authors believe that these accidents commonly seen in diabetic pregnancies are not due to inperfectly controlled diabetes but to abnormal hormonal balance, a rise of chorionic gonadotropin, fall of œstrogen and progesterone. These accidents are prevented by continuous substitutional œstrogen and progesterone therapy in replacement doses. The treatment is no longer a physiologic curiosity but well on with the field of practical therapeutics.

Vitamin K In Obstetrics

Helman and Others (*Am. J. Obst. & Gynec.*, 1940:40:844) write that plasma prothrombin studies have given us a new conception of hæmorrhagic diathesis in the new born. Far from being a disease entity unto itself it represents simply an extreme degree of a condition, hypoprothrombinæmia which all newborn infants exhibit to a certain extent and in various gradations. Unless the plasma prothrombin level is extremely low hypoprothrombinæmia may be without clinical manifestations. However, if with trauma, anoxia, and other causes of bleeding are superimposed, this prothrombin lack must necessarily play a part in the duration and, therefore, in the extent of the bleeding. Along with trauma and anoxia hypoprothrombinæmia must be regarded as a factor in the outcome of every case of bleeding in the newborn whether cerebral or otherwise. The prophylactic use of vitamin K seems to prevent the diminished prothrombin activity which normally is absorbed on the second day of life. When vitamin K is administered directly in the newborn infant, 1000 units or ½ mg. a day (spread over the day) are used for four days. The prothrombin level of infants can be elevated to a greater degree by administering the vitamin to the mother prior to delivery. It is far better to treat the babies yet unborn through the mother and thus protect them during labour.

Oedema In Pre-Eclampsia And Eclampsia

Dieckmann and Others (*Am. J. Obst. & Gynec.*, 1941:41:1) write that in normal pregnancy there occur an increase in venous pressure in the legs, an increase in the capillary permeability, a delay in the elimination of water and solids by the kidney and the average serum protein concentration and average colloid osmotic pressure of the serum protein are 6·5 gm. per cent and 28·7 c.m. of water respectively. They further observe that in pre-eclampsia and eclampsia these changes are noted in greater magnitude than normal. Changes in the concentration of the female hormone are apparently associated with œdema but whether as the cause or result cannot be stated from the present knowledge.

The prevention and treatment of œdema are dependent on the limitation in the diet of the principal constituents of œdema fluid, namely, sodium chloride and water. The curtail-

ment of sodium chloride present fewer difficulties and causes less discomfort to the patient than the restriction of water.

Oral Pregneninolone In The Treatment Of Spontaneous Abortion

Krohn and Harris (*Am. J. Obst. & Gynec.*, 1941: 41: 95) from the study of the results of treatment with oral pregneninolone (anhydro-hydroxy-progesterone) in a series of 50 cases of threatened and habitual abortion observe that the results obtained compare favourably with and closely approximate those obtained by progesteron in oil. There were only 8 failures and no undesirable or toxic effects were noted. Oral pregneninolone is of distinct value in the treatment of threatened and habitual abortion.

Prognosis For The Foetus In The Toxaemias Of Late Pregnancies

Browne and Dodds (*J. Obst. & Gynæc. Brit. Emp.*, 1940: 47:549) report on the study of the number of living infants delivered in 589 pregnancies in which the mother had shown some form of toxæmia in the later months of pregnancy. In the group of pre-eclamptic toxæmia there were 144 infants; 125 (87 per cent) were born alive and discharged alive from the hospital, 95 were born at term and the fœtal survival was 94 per cent. In the group in which eclampsia developed there 48 infants; 25 (52 per cent) were born alive and survived, 17 born dead or macerated. In the group of hypertension complicating pregnancy there were 86 infants; 54 (62 per cent) survived, 41 went to term and of the patients born at term 38 (92 per cent) survived. There were only 19 pregnancies in 17 patients with chronic glomerulonephritis; 12 infants (63 per cent) survived, only 3 of the surviving infants were delivered spontaneously, 4 delivered by Cæsarian sections and 5 "by some form of induction." There were 193 pregnancies in which the mother showed a recurrent toxæmia—in this group there were 154 surviving infants (80 per cent).

PEDIATRICS

Treatment Of Pneumonia In Children With A Single Dose Of Sulphapyridine

Platt (*Am. J. Dis. Child.*, 1940:60:1019) from the analysis of the results of treatment with only one dose of sulphapyridine in a series of 41 cases ranging in age from 2 months to 12 years and suffering from pneumonia observes that the single dose method gave satisfactory levels in the blood in most cases and the clinical results were as good as, if not better than, those in the group that received multiple doses. The single dose method is simpler, interferes less with the child's rest and sleep during the time when he is most ill and it decreases the incidence of most common toxic effects, nausea and vomiting. For the ordinary use in uncomplicated pneumonia 0·3 gm. of sulphaphyridine per kg. of body-weight administered in one dose will give satisfactory results. If it is thought desirable to maintain levels in the blood above 4 mgm. per 100 c.c. for more than 24 hours the dose can be repeated at 18 or 24-hours' intervals. Such repetition is probably advisable when the patient cannot be watched closely and would probably decrease the number of cases in which a secondary rise in tempreature occurs.

Treatment Of Certain Types Of External Herniae

Wakely (*Lancet*, 1940:1:822) reports on 2,020 cases of herniæ which he operated and these included 1,232 inguinal herniæ, 610 femoral herniæ and 155 umbilical herniæ. Most cases of indirect inguinal herniæ are congenital, remain after unsuspected until a sudden effort is made or a barium meal is given. In infants inguinal herniæ can be cured by truss but in many of these cases an operation has to be performed in adult life. The best treatment is operative. In young adults inguinal herniæ are congenital and indirect; trusses and appliances can never cure the condition and these often lead to compression atrophy of the abdominal muscles. In most of these indirect herniæ small direct herniæ are also present and must be operated on if recurrence is to be avoided. Rest in bed for at least two weeks after operation is essential. The fascia transversalis is sutured to the deep aspect of Poupart's ligament, the lower part of the external oblique is them sutured to the fascia transversalis and the upper and lower flaps of the external oblique are then united. Suture material is silk and the author's routine anæsthesia is avertin followed by a minimal amount of gas and oxygen. Infants with umbilical herniæ must first be treated with trees and later on operation should be performed. A curved incision is made above the umbilical cicatrix and the sac is then isolated and transfixed.

Dosage Of Magnesium During Childhood

Peterman (*J. Pediat.*, 1940:16:116) writes that magnesium sulphate is a valuable remedy in the treatment of convulsions in childhood and it should be employed in the following dosage: 50 per cent magnesium sulphate solution 1 ounce is given orally or per rectum to children under 1 year; 2 ounces to children from 1 to 5 years; 4 ounces to children from 5 to 10 years. 25 per cent solution may be given intramuscularly: 5 c.c. upto 1 year; 10 c.c. upto 5 years; from 10 to 15 c.c. upto 10 years. 20 to 25 per cent solution may be given intravenously: from 1 to 2 c.c. under 1 year; from 2 to 3 c.c. upto 5 years; from 3 to 5 c.c. upto 10 years and these injections should be given very slowly.

Tonsillectomy And Rheumatism

Pavey-Smith (*Med. Press and Arc.*, 1940:203:414) writes that the tonsils may only let the poison through, or they may be the seat of chronic infection without acting as a focus or they may become focally active in which case there is often damage of the crypt epithelium. Rheumatoid arthritis is the most common form of rheumatism that is caused by a focus in the tonsils. A tonsillar focus may also be responsible for fibrositis and muscular rheumatism. The small flat buried tonsil is the more actively focal type. A red streak on the anterior pillar of the fances indicates chronic infection; hyperæmia limited to the region of the posterior pillar indicates post-nasal infection and the enlargement of the gland is of no value as an indicator of infection.

If the focal tonsil is removed within 6 months of the onset of rheumatism a complete cure is probable; if rheumatism has been acute for 18 months only relief from pain can be guaranteed.

The author advocates complete dissecting out of the tonsils and does not recommend suction or diathermy.

NOTES AND NEWS

BOMBAY MEDICAL COUNCIL

The following summary of the proceedings of the Meeting of the Bombay Medical Council held under the presidency of Major General R. H. Candy, C.I.E., K.H.S., M.B.B.S., M.R.C.S., L.R.C.P., I.M.S., J.P., on the 10th February, 1941, is published for general information:—

The Council elected the following six members for the Executive Committee for the year 1941-42:—Lieut.-Col. S. L. Bhatia, M.C., M.A., M.D., I.M.S., J.P., Drs. B. G. Vad, M.D., F.C.P.S., C. A. Amesur, M.S., M.R.C.S., L.R.C.P.S., D.L.O., George Coelho, M.B.B.S., M.R.C.P., B.HY., U. B. Narayanrao, L.C.P.S., and V. D. Sathaye, B.SC., L.C.P.S.

With regard to the adjourned consideration of complaint against Dr. J. J. Cursetji, M.D., L.R.C.P. & S., etc, in respect of the publication of an article in the *Insurance World* of February, 1939 and several statements made therein, it was decided that Dr. Cursetji's letter of explanation and regret be accepted and the papers recorded.

It was decided that the consideration of the complaint against Dr. J. P. Chobhe, M.B.B.S., Nasik, for infringement of the provisions of clause 1(*b*) of Section II of the Code of Medical Ethics as per the resolution of the Executive Commitee in that behalf, be adjourned to the next session of the Council.

With reference to the Report of the Sub-Committee in respect of the Notice of Motion by Dr. Jivraj Mehta regarding amendment in section 3 of the Schedule to the Bombay Medical Act, 1912, and the memorandum from the Surgeon General with the Government of Bombay and its accompaniments, on the question of recognition of medical degrees by Provincial Medical Councils, of Licensing Bodies outside British India, pending amendment of the Indian Medical Council Act. 1933, investing the Medical Council of India with powers to have an All-India Register, it was decided that the object the Medical Council of India had in view could best be achieved by Central Legislation on the subject, and pending the same, by the Provincial Medical Councils recognising for registration qualifications laid down in Schedule II of the Medical Council of India Act, 1933, only. It was also decided to recommend to Government that pending the proposed legislation by the Government of India regarding amendment of Indian Medical Council Act, 1933, on the question of recognition of Licensing Bodies outside India, qualifications of all non-Indian Licensing Bodies not on the Second Schedule to the Medical Council of India Act, 1933, be deleted from the Schedule to the Bombay Medical Act, 1912.

The recommendations of the Sub-Committee in respect of the Notice of Motion proposed by Dr. Gadgil and seconded by Dr. Coelho regarding amendments in the Rules of the Council relating to election were accepted subject to certain amendments being incorporated therein.

The Committee's recommendation in respect of a resolution adopted by the Council relating to the amendment of the Bombay Medical Act, VI of 1912, was accepted.

It was decided that having regard to the practice obtaining in other Provinces, the courtesy title of "Dr." should be prefixed hereafter in the case of all medical practitioners registered under the Bombay Medical Act, 1912.

The motion of Dr. U. B. Narayanrao expressing the Council's opinion that in order to have a uniform Code of Medical Ethics for the whole of India, the Medical Council of India be requested to convene a representative Conference of all the Provincial Medical Councils or Boards constituted under an Act of Provincial Legislature, was lost.

It was decided that the papers relating to the application of Mr. R. M. Thaker for registration of his name under section 7 (3) of the Bombay Medical Act, 1912, be referred back to the Executive Committee for further investigation and report.

With reference to the memorandum from the Surgeon General with the Government of Bombay requesting the views of the Council on the proposed amendment to the Government Resolution, General Department, No. 7898, dated 6th November, 1939, relating to the registration of persons holding qualifications from the College of Physicians and Surgeons, Calcutta, in 1909, it was decided that no amendment in the orders contained in the Government Resolution was necessary and that such cases of those practitioners only who are domiciled in the Province of Bombay or Sind should be considered hereafter.

It was decided that in the opinion of the Council for paragraph 1 (1) of Government Resolution, General Department, No. 7898, dated 6th November, 1939, regarding recognition of qualifications of certain Calcutta institutions obtained between the years 1912 to 1916 (both inclusive) the following be substituted:—

"The National Medical College and the National College of Physicians and Surgeons, Calcutta."

With reference to the letter from the Surgeon General with the Government of Bombay requesting the views of the Council on the question of proposed legislation to amend the Indian Medical Council Act, 1933, in order to empower the Council to appoint "Visitors" in addition to Inspectors, it was decided that the proposed legislation respecting the appointment of visitors by the Medical Council of India, was not necessary.

The resolution given notice of by Dr. Mrs. K. Tarabai, seconded by Dr. Amesur, regarding proposed amendment of some provisions of clause 1 of Section II of the Code of Medical Ethics relating to certain Objectionable Practices, was referred to the Executive Committee for report.

INDIAN SCIENCE CONGRESS ASSOCIATION

The Indian Science Congress will be holding its Twenty-ninth Session at Dacca from January 2nd to January 8th, 1942.

The work in the Science Congress Session will be divided into the following fourteen Sections: (1) Mathematics and

Statistics, (2) Physics, (3) Chemistry, (4) Geology, (5) Geography and Geodesy, (6) Botany, (7) Zoology, (8) Entomology, (9) Anthropology, (10) Medical and Veterinary Research, (11) Agriculture, (12) Physiology, (13) Psychology and Educational Science, and (14) Engineering.

The grouping of subjects into Sections offer opportunities to workers in the various branches of science to discuss problems both of a specialised nature referring to a particular branch as also those of common interest to more than one branch. During the Session, meetings of Sections will be held every day where original papers will be read; there will also be discussions on points of special scientific interest. For co-ordination of work in different branches of science having common problems joint discussions of a number of Sections are being arranged.

At every Session of the Congress representative delegates from foreign scientific bodies like the British Asociation for the Advancement of Science, the American Association for the Advancement of Science, etc., are invited to attend and join the discussions.

The official language of the Congress is English.

The following is an extract from Rules and Regulations of the Congress guiding the presentation of papers for a Session of the Congress.

"All papers submitted for reading at the next Session of the Congress shall be forwarded to the General Secretary so as to reach him not later than September 15th of the calendar year preceeding the Session of the Congress at which the papers are intended to be read, provided that this date may be changed by the Executive Committee for special reasons.

Any paper submitted for reading at the Session of the Congress shall be accompanied by an abstract in triplicate.

All papers submitted for reading at a Session of the Congress shall be checked by the Sectional Correspondent concerned or by such person or persons appointed by the General Secretary. The papers together with a copy each of the abstracts shall then be sent to the Sectional President concerned for referring and acceptance. Decisions with regard to acceptance or rejection of any paper shall be final and all reports confidential.

Only abstracts of the papers received by the General Secretary before September 15th in accordance with the above shall be printed in Part III of the Proceedings. In exceptional circumstances abstracts of papers received after that date and read before the Section, if spcially recommended by the Sectional Committee, may be printed in Part IV.

No paper published elsewhere shall be accepted.

In the case of joint papers, each author must be a member of some category."

Further information may be obtained from the Science Congress Office, 92, Upper Circular Road, Calcutta.

POST-GRADUATE COURSE AT THE MADRAS MEDICAL COLLEGE

We are asked to announce that a postgraduate course will be held for four weeks from the 15th September, 1941 at the Medical College, Madras. The course is open to all Registered Medical Practitioners. Not more than twenty candidates will be admitted and a fee of Rs. 50/- will be charged. Non-Madrasee candidates will be charged Rs. 75/-. No tuition fee will be levied from the Government Medical Officers admitted to the course.

Further particulars can be had from the Principal, Medical College, Madras. Applications should reach him before 31st July, 1941.

SOME PHYSIOLOGICAL ASPECTS OF THE PRESENT WAR

Professor Hardridge in dealing with the subject mentions two main points of difference between this war and the last, namely, the black-out and evacuation.

Problems of the black-out—The simplest method to be used so that the eyes can be best adapted to see in the meagre light available is to close one eye and keep it shut for ten minutes before going out of doors—the eye could then have had time to become dark adapted while the other one was being used. With regard to nutritional aspect of seeing in black-out a great deal of emphasis must be placed on adequate vitamin A.

General Problems—These include exposure to cold (derangement of peripheral circulation), to excessive fatigue (loss by the body of phosphoric acid, lactic acid, potassium and calcium), to hunger and thirst (loss of body weight, nutritional œdema), to deficiency of oxygen by airmen flying at high altitudes, to vitiated air as in ill-ventilated air-raid shelters. In war time when fresh foods may be difficult to get, a vitamin deficiency or several vitamin deficiencies at the same time are likely to occur. There is also a deficiency of the essential amino-acids which are not only necessary for the growth of the children but for the good health of adults.

A few specialized conditions are also mentioned, *viz.*, anæmia of the brain with sudden failure of vision caused by rapid turns in the air, rupture of the blood vessels of the drum and even rupture of the drum itself by loud explosions.

There are some good points of war too. Diabetes mellitus and gall stones become less frequent due to rationing in the diet; physical training and fresh air may ultimately have a good effect on young people in the military service.

In dealing with vitamin deficiencies he gives a survey of the body, mentioning the vitamins found important to each part, including also some other dietetic substances likely to prove effective.

Digestive System

The important vitamins are A. B. Pp and C.

Loss of appetite: [A. B_1. Pp].
Lips: Sore surface: Submucous hæmorrhages [C].
Teeth: Periodontal disease [A]. Caries [C. D. calcium and phosphorus]. Late dentition [D].
Gums: Swollen and sore [Pp]. Bleeding [C].
Tongue: Raw with loss of taste [Pp]. Swollen [C].
Mouth: Sub-mucous hæmorrhage [C].
Salivary glands: Infected [A]. Swollen [C].
Tonsils: Infected [A].
Stomach and intestine: Infected [A].
Constipation: [C].

Diarrhœa: [B_1. Pp. C].
Blood in fæces: [C].

BLOOD, HEART AND LUNGS

The important vitamins are A. B_1. C and D.
Blood cells: Anæmia[B_1].
Hæmoglobin: [C. Iron. Copper, thyroxine].
Plasma protein: [Protein of diet].
Blood calcium: [D].
Blood Phosphorus: [D].
Heart: Endocarditis [A]. Enlarged heart, bradycardia and palpitation [B_1]. Breathlessness [B_1. C]
Circulation: Low blood pressure [B_1]. Œdema [late C. B_1 and protein].
Pharynx: Aphonia [B_1].
Infections: *e.g.*, Broncho-pneumonia [A].

SENSATIONS AND MOVEMENTS

The important vitamins are A. B_1. Pp. C. and D.
Eye: Keratinization [A]. Night-blindness [A]. Swollen lids [C].
Ear: Abscesses [A].
Nose: Impaired smell [Pp].
Tongue: Loss of taste [Pp].
Skin: General erythema [A]. Local erythema [Pp]. Numbness and tingling [B_1]. Defective nutrition [C]. Erythema pernio [D. calcium].
Bones: Hæmorrhages under periosteum [C]. Enlarged epiphysis [D]. Softening [D].
Joints: Painful [C].
Muscles: Tenderness [B]. Intramuscular hæmorrhages [C]. Tone low [B_1. C and D]. Rapid fatigue [B_1. C and D]. Tone high [Pp]. Cramp and tremor [Pp].
Reflexes: Depressed [B_1]. Exaggerated [Pp].
C.N.S.: Delusions and dementia [Pp].

THE GENITO-URINARY SYSTEM

The important vitamins are A. C and E.
Kidneys: Various infections [A]. Calcium phosphate stones [A].
Bladder: Infections [A]. Stones [A].
Urine: Blood in [C].
Vagina: Keratinized [A].
Uterus: Failure during gestation [E].
Mammary gland: Faulty lactation [E].
Testis: Faulty spermatogenesis [E].

—*Practitioner.*

BENGAL PROVINCIAL MEDICAL LICENTIATES' CONFERENCE

The following address was delivered by Dr. K. S. Ray, M.A., B.SC., M.B., CH.B. (Edin.), M.L.A. (Bengal), President of the I M. A. at the inauguration of the Bengal Provincial Medical Licentiates' Conference recently held at Dumdum, Calcutta:

I do not know why I have been called upon to perform the function of inaugurating your Provincial Conference this afternoon when there are so many abler men in the field who deserve the honour much better than myself. Your choice has been probably due to the fact that I had played a humble part along with many others in the fight against the perpetuation of the caste system in the medical profession in India. The Indian Medical Association which has now been established for nearly thirteen years has been trying to achieve this object and has, therefore, thrown its door wide open so as to embrace within its fold all sections of medical men who practise the western system of scientific medicine irrespective of whether they are graduates or licentiates. The Indian Medical Association has consistently lent its helping hand towards the demand made by your Association from time to time regarding the raising of the standard of training and for throwing open facilities of post-graduate studies to the members of the licentiate group. If the Indian Medical Association has not yet succeeded in securing all the privileges for which it has joined hands with your Association, it is only due to the fact that it has not yet been able to attain that position in the country which it ought to do. This is probably because there are still many medical men in the country who are keeping aloof and have not yet joined the Association. I have always pleaded for unity in the profession and I feel that until the medical profession in India can speak with one voice under one banner the individual and sectarian interests cannot be safeguarded nor the problems that face us can be solved. We must act as one solid and united body to achieve this fundamental object.

You will be discussing here many of the problems affecting your vital interest which will be dealt with by your worthy President and the Chairman of the Reception Committee. I need not go into the details of the various problems except remarking on some of the urgent questions which concern not only you but the entire medical profession. First and foremost is the question of the period of training that is necessary for a medical man to whom the lives of fellow human beings can be trusted. It has been urged by various conferences that the existing four years' course should be raised to five to bring it on the lines of the curriculum recommended by the Medical Council of India, so that ultimately one uniform minimum standard of training may be adopted throughout India. One is glad to see that in some of the provinces namely Madras and the U. P. this has been done, but unfortunately in others no steps have been taken in this connection. In Bengal there is a tendency not only to perpetuate the existing state of affairs but to further increase the number of medical schools. In answer to a question put by me before the Bengal Legislative Council it was stated that during the last 10 years only 10% of the students passed the Final Examination in four years time, and the remaining 90% could not pass the examination within the specified course of four years. It is most unfortunate indeed that the opinion of the expert body, *viz.*, the Medical Council of Registration in Bengal, which is also unanimous in the matter of abolishing the four years' course, remains unheeded by the authorities.

The question of providing an All-India Register is already accepted by the Medical Council of India and the time is not far distant when the licentiate will find their names also included in the All-India Register.

The existing facilities for postgraduate training are sadly inadequate and there are no arrangements in this province for special postgraduate training and whatever meagre facilities occur elsewhere in this respect are mostly denied to the licentiates' group. The profession has realised the need of specialisation and the various All-India Sectional Congresses

which are being organised during the last four or five years are ample evidence of this need. These conferences are held at various times and at various places in India and serve to make up for the deficiencies of facilities for the existing post-graduate training arrangements to some extent. But unfortunately these conferences are held in different parts of India and in different seasons and it is difficult for the general practitioners to take full advantage of these conferences due to the difficulties which they have to encounter in leaving their practice so often to attend these conferences.. Besides the travelling expenses come in their way and the full benefit of these conferences so far at least as their educative value on the general practitioners is concerned is thereby to some extent minimised. In order to overcome this difficulty I would humbly suggest that in future attempts should be made to hold all the All-India Sectional Conferences like the Obstetrical and Gynæcological Congress, the Surgical Congress, and the Ophthalmological Congress etc. in the same centre more or less at the same time so as to enable those of the general practitioners who attend besides the specialists to take full advantage of the valuable deliberations which are carried out in the sectional conferences.

The question of unemployment amongst the members of your section is as acute as in any other section of the profession. The reluctance of the public to pay the medical men for consultation is well known. The result is not only harmful to the medical men in depriving them of their legitimate dues but also to the public as it is likely to create an urge to prescribe unnecessarily and thereby try to make some profit out of the sale of their prescriptions. The time has come when the medical men should tell the public openly that in the interest of the medical profession it is necessary that they should be paid their legitimate dues. After all doctors have also got to live. Modern medical education is an expensive affair and if after going through a full course of training they do not get a decent living it is bound to be detrimental to the interest of the medical profession as a whole. I would suggest that the various All-India organisations should fix a particular day and hold meetings simultaneously throughout India urging upon the public to see that no doctors would be consulted free and whatever sum it be some consultation fee should be paid to every practitioner depending upon his rank and standing in the profession. There is further the question of quacks who not only affect the sphere of activities of the medical men but also inflict lot of unnecessary sufferings on the innocent public by maladministration of medical treatment. The time has come when this question of quackery has to be tackled in a proper manner. To me the only remedy seems to be some sort of National Health Insurance Scheme or the adoption of subsidised rural medical relief in this province. In this connection I would urge with all earnestness a fair consideration and a quick decision regarding the scheme submitted by Lt. Col. A. C. Chatterjee our Director of Public Health. The scheme may have short-comings, but there is no reason why a trial should not be given and modifications made subsequently in the light of experiences of the actual workings of the scheme. This will not only solve the problem of employment among the medical profession of the province to some extent but also provide some sort of rural medical relief which is sadly lacking.

I do not want to dilate on the various other problems but before I finish I should like to urge again a question which has been raised more than once as to whether the time has not come yet for the fusion of the two important organisations of the medical profession in India, namely the All-India Medical Licentiates' Association and the Indian Medical Association into one amalgamated and solid body and as I said at Vizagapatam "it is a consummation devoutly to be desired. The accession of strength to the amalgamated body would render its influence almost irresistible. No medical men could afford to remain outside its membership, no authority could fail to give it ear. Unfortunately we are burdened with the *damnosa hereditas* of compartmentalism within our profession that is found in no other country. Of happy augury, however, would be the fusion of these two Associations into a strong and united body working for the common welfare and highest good of the country. It is for the leaders of both our Associations to consider seriously whether the time for further hesitation has not passed. No one stands to lose by such amalgamation. Moreover, the various problems facing the medical profession as a whole would thereby be brought considerably nearer solution." The unity of the entire profession is further of particular importance in view of the stirring times through which we are now passing due to the war and who knows what fate awaits our country and what sacrifices the profession may have to undergo and what services it may be called upon to render to our fellow countrymen. Let us, therefore, sink our petty jealousies and differences and unite in the service of our motherland. With these words I have now great pleasure in declaring the Conference open.

SIR HENRY DALE, P.R.S

After serving as Secretary of the Royal Society 1925-35 Sir Henry Dale has been unanimously elected president. This will be an encouragement to those who like to see the Royal Society in close touch with human needs. The last war with E. H. Starling as its agent, linked physiology to the nutrition of the people. May we not now hope that the nature and purpose of remedies will be made clear to us and the Phil. Trans. become the book of human experience? Moreover, Sir Henry Dale will preside over the council which advises the Government on scientific matters.—*Lancet.*

WENCKEBACH

The death of Karel Frederick Wenckebach breaks the last link with Vienna as an international centre of medical culture Wenckebach succeeded to Carl v. Noorden's clinic in 1911 and became one of the most popular teachers in the University until he resigned his chair in 1929. He qualified at Utrecht in 1888 with the intention of becoming a doctor in the fens. But the urge to find out how the human heart works got hold of him and he was called to the chair of medicine at Utrecht where he spent ten fruitful years working on the irregular heart. He reached Vienna *via* Strassburg. On his 75th birthday celebrated by his colleagues there two years ago it was emphasised that his power to win hearts was bound up with his love of nature and of art.—*Lancet.*

SUPPLEMENTARY MILK DIET IN SCHOOL CHILDREN

The Chief Medical Officer of Delhi reports certain results with milk as a supplement to the diet of children. He concludes that the addition of one pound of whole milk to the diet of the child has a profound effect on his health and growth, that half a pound of whole milk, while not productive of striking results, produces appreciable benefit and can, therefore, be recommended for wide adoption and that a pound of skimmed milk appears to have approximately the same effect as half a pound of whole milk. The price of half a pound of pasteurised milk is only 9 pies, while a pound of skimmed milk similarly treated costs one anna, indicating, therefore, that whole milk should be preferred on economic grounds.

DONATION FOR PHARMACEUTICAL LABORATORY

At the Foundation ceremony of the new building for the Department of Chemical Technology of Bombay University at Matunga Mr. R. P. Masani, Vice-Chancellor of the Bombay University, while referring to the various donations received, announced a donation of Rs. 40,000/- from Miss Palamkote for the proposed Pharmaceutical and Fine Chemicals Laboratory to be named after her mother, Bai Avabai Limjibhai Palamkote. We hope other public spirited philanthropists will come forward in large numbers to found similar laboratories at other centres for this noble cause.

VITAMIN A FROM FISH LIVER OILS

The first record of the high vitamin-A potency of some Indian fish liver oils was made by Guha and co-workers in 1933, who reported that some of these oils were many times more potent than cod liver oil and a few of them had almost half the activity of halibut liver oil, which is the richest liver oil so far known. Investigations which have since been carried out in various parts of India have confirmed these observations. Shark liver oil is now being commercially produced and sold by the Madras Government. Work on the vitamin A of fish liver oils is continuing at Calcutta University, Dacca University and All-India Institute of Hygiene and Public Health. It has been found that "Air" and "Boal" fish liver oils have a vitamin A content nearly half of that in halibut liver oil, while that of certain samples of "Dhain" and "Shole" liver oils is nearly equal that of halibut oil. It is hoped that the commercial exploitation of the richer oils will shortly begin in this country.

BOOK REVIEWS

SURGERY OF MODERN WARFARE: Part II. Edited by HAMILTON BAILEY, F.R.C.S. and compiled by sixty-five contributors. 1940. Royal 8vo. Pages iv+160 (from 161 to 320). Illustrated. E. & S. Livingstone, Edinburgh Price 12s. 6d. net.

Part II of this great work is now published and we have no doubt that it will receive as cordial a reception as was accorded to Part I.

It will be helpful to readers to quote at length from the Editor's note to this Part. "Mr. McIndoe brings our technique of skin grafting right up to date. The first six pages of this chapter are included in Part I.) For several years I have yearned to try maggots for removing sloughs, and have envisaged these maligned creatures discriminating between living and dead tissues with an accuracy achieved by no other method. There are sure to be readers who will succeed in stimulating their laboratory associates to breed sterile maggots and who will be able to overcome the prejudices which have baulked me. I think this chapter should be studied carefully by all who deal with cases of infected wounds.

"Mr. Tudor Edwards standardizes the measures to be taken in thoracic wounds. The clarity of his instructions is enhanced by Miss McLarty's excellent pictures. I found his advice on what to do in hæmothorax particularly illuminating.

"With regard to abdominal surgery, I doubt if in the whole world four suregons could be found whose combined experience of abdominal wounds equals that of these eminent contributors. What they have to say *must* be authoritative."

In this Part, Section II on "Wounds and Special Considerations" is continued. In Section III, consisting of thirteen chapters and nearly one hundred pages, wounds of the trunk are discussed by several collaborators. Only the best and most modern practice is embodied and each chapter is written by an authority on its particular subject. The chapters on wounds of the genito-urinary tract are also replete with valuable practical hints. Section IV, dealing with wounds of the blood vessels, consists of five chapters but will be completed in Part III of the book. After an analytical chapter on the use of tourniquets we come to one of the most essential subjects for all war surgeons to master. Gone for ever are the "classical" exposures of blood vessels. An excellent description is given of the living anatomy and methods of exposure of the blood vessels of the living as opposed to the dead.

It is superfluous to say anything more in praise of this work. We are grateful to Mr. Hamilton Bailey and his collaborators for this very practical book on War surgery. Great credit is due to the publishers for the excellence of the printing and illustrations. We look forward to the appearance of Part III.

P. N. R.

TEXT BOOK OF PUBLIC HEALTH—By W. N. FRAZER. Tenth Edition, 1940. Royal 8vo. Pages x+504 with 64 text figures. Published by E. & S. Livingstone, Edinburgh.

This (tenth) edition of the Text Book of Public Health, formerly appearing under the names of Hope and Stalybrass—both well-known authors and sanitarians, contains fifteen new or completely rewritten chapters dealing especially with tuberculosis, smoke abatement, genetics, hospital administration, etc.

The chapters on metamorphology, occupational hygiene, nutrition and epidemiology are well written. The chapter on medical aspects of civil air defence is really a very opportune and valuable addition to the book.

It has now become a fashion to include "mental hygiene" in text books on hygiene and public health. It is a moot point

whether this should form a part in a book of this nature or it should be taught as a part of medicine. It is very doubtful whether it can be adequately treated in a small compass in a book on public health to be of any real value to students going in for medical examination.

The book contains a mass of useful information connected with public health administration and legislation and will be of considerable assistance to students preparing for the Diploma in Public Health in English Universities.

It is also of a highly practical nature and so is expected to meet the needs of the medical students.

The paper, printing and also the binding of the book is good.

J. L. Das.

GLEANINGS FROM MY RESEARCHES, Vol. I, Kala-azar, Its Chemotherapy—By Sir Upendranath Brahmachari, Kt., M.A., M.D., P.H.D., F.R.A.S.B., F.N.I., 1940, Super-royal 8vo. Pages xx+461. Illustrated. Published by the University of Calcutta.

This is the first volume of a great work by a great man of our country. It contains 57 articles, majority of which were published in various journals since 1920 onwards. The rest are resume of his lectures delivered in different institutions. It may be recalled here that since his publication of "A treatise on Kala-Azar" in 1928, this is the first book containing the researches carried on by him. Regarding the arrangement of the papers the author states that "there has been no attempt to observe a logical or even a chronological sequence and the papers are set out in the manner which, it is hoped, is best calculated to provide stimulating and attractive reading." So the book opens with his famous observation on the cutaneous manifestation of L. d. bodies (Dermal Leishmanoid: Brahmachari's Dermal Leishmaniasis) and its various clinical and therapeutic details appear on pages 172, 207, 212, 233. This may not be considered attractive or stimulating to some

Centuries ago Valentine in his book "The triumphant chariot of Antimony" wrote "He who writes of antimony needs a great consideration and a most ample mind. One man's life is too short to be perfectly acquainted with all its mysteries." The majority of the author's papers show the painstaking biological assay with the different antimony salts, *e.g.*, sodium antimony tartrate, potassium antimony tartrate, ammonium antimony tartrate, lithium antimony tartrate, etc. As one goes through them, he is struck by the patience, farsightedness, mastery of complex chemistry, the various pathological and clinical data. Early in 1921, Sir U. N. Brahmachari discovered that urea could combine with stibanilic acid and the resulting compound surpassed all his expectations in its value in the treatment of Indian Kala-Azar. This compound he named Urea Stibamine. The main advantages claimed by the author with urea stibamine in his papers are: (*a*) There is rapid improvement in the clinical condition of the patient. (*b*) There are almost no signs and symptoms of intolerence. (*c*) The drug is equally effective when given in a long course (1 month) or a short course (2-3 weeks). (*d*) It is effective in the treatment of relapses. (*e*) It is also effective in the cases resistent to sodium antimony tartrate. Urea Stibamine is to be administered intravenously and as such is not suitable for children and people with indistinct veins. The late Sir Patrick Manson once wrote to the author "Go on in your efforts to get an antimony compound that can be used as an intramuscular injection or better still as a drug that can be administered by mouth." The author prepared new amino-antimonyl tartrates containing radicles, possessing anæsthetic properties, *e.g.*, phenocoll, anæsthesin, novocaine, aposthesine, orthoform, and acriflavine, for administration by the above routes.

There are a few papers describing the author's Globulin precipitation test. This and other observations show that he has tackled the clinical as well as the therapeutic side of Kala-Azar. Not unnaturally the names of Kala-Azar and Brahmachari go together. The book contains many good photographs, charts, and histological pictures.

In the last paper "The conquest of Kala-Azar" the author gives the following illuminating statistics of Kala-Azar in Assam since the introduction of Urea stibamine.

Year	Incidence of Kala-Azar	Mortality from Kala-Azar
1925	60,940	6,365
1935	11,100	845

This is no small achievement. Here I cannot help quoting the presidential remarks of Sir Nilratan Sircar at a meeting held at the Calcutta Medical Club on the 20th September, 1923. He said, "No German would have stronger reasons of being proud of the Krupp gun or a French man would have greater reasons of being proud of his navy than we Indians would have, being able to use one of our home-made products for the purpose of fighting out one of the most dreadful diseases through the discovery of our Dr. Brahmachari. We have every reason of being proud of what has come out of Dr. Brahmachari." This kind of publication is bound to stimulate young research workers working under difficulties in India.

We congratulate the University of Calcutta for publishing such an admirable volume.

B. P. Neogy.

HAND BOOK OF ANÆSTHESIA—By Ross and Fairlie. Revised by R. J. Minnitt. Fifth Edition, 1940. Crown 8 vo. Pages vii+364. Published by E. & S. Livingstone Edinburgh. Price 12s. 6d. net.

This is a very nice book on the subject. The arrangement of the chapters and the easy reading language has made it most useful to the students. There are many interesting subjects and the author has given his experienced advice. The observation of the patient and the abnormal signs during anæsthesia are just the subjects which a student should know thoroughly. The role of CO_2 in anæsthesia is very important to realise and the author has stressed it although in a brief way. The intratracheal methods of anæsthesia are too briefly narrated for a student on the subject.

The author's opinion of chloroform that "It should only be used if no other form of anæsthesia is applicable" does not hold good for the tropics. If judiciously administered to its safety limit it gives no untoward complication.

While discussing the treatment of syncope the author has mentioned 'Venesection' (page 235). I fully support his contention. Traditional use of saline and glucose in syncope is to be deprecated..

The writing of the chapter on local anæsthesia and spinal anæsthesia devolved on Mr. Quarry Wood, a vastly learned and experienced surgeon. He has given the most important points about it.

On the whole the book has been very useful and a long-felt want of a standard text book on the subject has been removed.

H. BARAT.

CORRESPONDENCE

The Editor is not responsible for any views expressed by the contributor—EDITOR.

SEX DETERMINATION

THE EDITOR, *Journal of the I.M.A.*, Calcutta.

Sir,

After years of deliberation I have found that it is possible to control the sex of the coming baby at conception; though there are advocates who believe that the sex of the fœtus can also be changed after conception. But difficult as these things are I have attempted to control the sex of a coming baby at conception only and have been successful in 4 cases out of the 4 cases that I have tried hitherto.. I have felt a great necessity for making scientific investigations of this nature for the following reasons:—

1. It may help in relieving unemployment in the country as it will mechanically curtail increase of population by lessening the birth of female children. 2. It will help in diminishing dowry system when there is a limited number of girls born. 3. Male heirs are so much in demand amongst the rich. 4. It will help in balancing the sexes in the various provinces and mechanically check criminality, *e.g.*, in the Punjab there is paucity of females and in order to supply this demand kidnappers are so active. Lessen the demand and the suppliers mechanically disappear.

It has been the desire of sages of yore like Manu, Pandits of the Dharma Shastras to fix upon some method by which a male or female child could be produced at will. Their methods have been mostly unsuccessful as tried by me and some of the methods are even impracticable to carry out. But by combining some of their theories such as "the strength of the ova and spermatozoa, the indications obtained from the pulse such as the *Nari Chandra Masih Nari Sumiran*, etc., or the activity of the testes and ovaries of the right and the left;" with the theories of eminent German doctors like Billman, Unterbergen, Knaus and others, I have achieved successful results in 4 cases mentioned above. Before this, Plasher of America had attracted my attention by his chromosome theory. He calls the male chromosomes Y chromosomes and the female chromosomes X chromosomes and says that when X combines with the egg, a female offspring is produced when Y combines with the egg a male offspring is produced. But when he comes to the method of effecting the desired combination he is lost in the wilderness and is all despondency. Hence no good comes out of his theory. Agnes Bluhm goes further and says that the spermatozoa are of two kinds, male and female. She says that the female spermatozoa are more sensitive to alcoholic intoxication and hence a male test animal when alcoholised gives rise to a male offspring. My experience has been to the contrary, a habitual alcoholic produced successively 6 girls and never a boy. Whereas by my method a lady of 30 years of age who had in succession 2 girls and whose husband belongs to a family where 5 girls were born in succession before 2 boys were born, got a baby boy on the 27th of August, 1940. This is my 4th case. But one swallow does not make a summer. I wish other eminent obstetricians might take up this research earnestly and if any body has anything new to say I shall feel ever grateful. I am, etc.,

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